

San Francisco Bay Conservation and Development Commission

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TO: All Commissioners and Alternates

FROM: Lawrence J. Goldzband, Executive Director (415/352-3653; larry.goldzband@bcdc.ca.gov)
Peggy Atwell, Director, Administrative & Technology Services (415/352-3638; peggy.atwell@bcdc.ca.gov)

SUBJECT: Approved Minutes of December 16, 2021 Virtual Commission Meeting

[Note: Agenda Item 12 was taken out of order.]

1. **Call to Order.** The virtual meeting was called to order by Chair Wasserman at 1:05 p.m. The meeting was held online via Zoom and teleconference.

2. **Roll Call.** Present were: Chair Wasserman, Commissioners Addiego, Ahn, Beach, Burt, Butt (represented by Alternate Arreguin), Chan (represented by Alternate Gilmore), Eckerle, Eisen, Eklund, Gioia, Gunther, Hasz, Lee (represented by Alternate Kishimoto), Lucchesi (represented by Alternate Pemberton), Moulton-Peters, Pine, Ranchod (represented by Alternate Nelson), Randolph, Showalter, Spering (represented by Alternate Vasquez) and Wagenknecht. Senator Skinner, (represented by Alternate McCoy) was also present.

Chair Wasserman announced that a quorum was present.

Not present were Commissioners: Department of Business Transportation & Housing (El-Tawansy), Sonoma County (Gorin), City and County of San Francisco (Peskin), U.S. Environmental Protection Agency (Vacant), Department of Finance (Vacant)

3. **Public Comment Period.** Chair Wasserman called for public comment on subjects that were not on the agenda.

I do want to inform everyone that we will hear Agenda Item 12 before we take up Item 8.

Chair Wasserman gave the following instructions: Now, I want to quickly share some instructions. First, and this applies to everyone, please make sure you have your microphones or phones muted to avoid background noise. For Commissioners, please turn on your cameras so everyone can see you. For members of the public, if you would like to speak either during our open public comment period or during a public comment period on a specific item you will need to do so by either raising your hand on the Zoom platform. If you are new to Zoom it's by clicking the participants icon at the bottom of your screen. If you are on the phone you press *6 on your keypad to unmute your phone to make a comment. We will call on individuals who have raised their hands in the order that they are raised as best we can. After you are called on you will be unmuted so that you can share your comments. Remember, public comment is limited to three minutes per person.



Please keep your comments respectful and focused; we are here to listen to everyone who wishes to address us, but everyone has the responsibility to act in a civil manner. We will not tolerate hate speech, threats made directly or indirectly, and/or abusive language.

Every now and then you will hear me refer to the meeting "host" — our BCDC staff is acting behind the scenes to ensure that the technology moves the meeting forward smoothly and consistently.

While Peggy Atwell will be our main host, Alex Ritchie of our administrative team will be handling public comments at today's meeting to prep him for times when Peggy may not be able to be with us.

BCDC has also established an email to accept public comments for our meetings. Its address is publiccomment@bcdcc.ca.gov. Today we do not have any public comments in advance. If we receive any emails during the meeting they will be shared with the Commissioners and be made available on our website bcdcc.ca.gov.

Our next order of business is Public Comments. We have not received any in advance. Alex are there any hands raised to address us now?

Mr. Ritchie replied: Yes Chair, we have three public comments starting with John Coleman.

Mr. Coleman addressed the Commission: Good afternoon, this is John Coleman at the Bay Planning Coalition. I'd like to first wish all of you Happy Holidays during this period and hopefully 2022 will be a much better year than 2021.

The reason I am calling in on the Public Comment — I haven't seen it on the Agenda — but it is my understanding that Brad McCrea, this is his last BCDC meeting. As such, I would like to thank Brad for all his fantastic service to the public protecting the Bay and working with interested parties.

We may not have always agreed but I don't always agree with my wife for that matter either (assorted laughter on screens) but Brad has been great to work with; very pragmatic and a problem solver.

I wish him the best. We wish him the best from the Bay Planning Coalition in the future and we are hoping that in some capacity we will be able to work with Brad. Brad, thank you for everything and to all of you Happy Holidays and to a good year in 2022. Thank you.

Mr. McCrea acknowledged: Thank you, John.

Mr. David Lewis was recognized: Good afternoon, thank you. I would first like to echo John's comments. It has been a pleasure working with Brand and I hope we will have an opportunity to do that more in the future.

I am David Lewis, Executive Director at Save the Bay. One of the issues current Commissioners may not be aware of but which we have been following closely for more than 20 years is the Port of Oakland's performance on a number of permits around Middle Harbor both the effort to restore habitat in the Basin there as a result of a dredging project two decades ago and the Middle Harbor Shoreline Park which is an amenity that BCDC insisted be created.

In connection with that project an amenity for the public to enjoy, pretty amazing views and other amenities at that site.

The Park has never quite fully lived up to its needs and starting a few years ago the Port of Oakland was holding large events and concerts there. The Park was essentially destroyed and the maintenance fell into disrepair.

To BCDC's credit your Executive Director brought this to the Port's notice a couple of years ago. And last week we wrote to Larry asking for an update on efforts to enforce the permit conditions because there has been significant litter. A lot of the intended landscaping has fallen into disrepair and there have also been problems with access to the facilities there.

So I appreciate that the Executive Director has written us back and notified us that the staff has been working for the last two years to try to resolve these and that sometime soon the Commission will be presented with either a settlement agreement between BCDC and the Port or a formal enforcement action recommendation against the Port.

So we appreciate the staff's attention to this and we look forward to seeing the details of the resolution. Thanks very much.

Mr. Ross Libenson spoke: My name is Ross Libenson. I am a 25-year resident of West Contra Costa County. I am here to support the position of the BCDC in their November 15, 2021 letter to TIMMA, the Treasure Island Mobility Management Agency which is seeking to impose a toll for ingress and egress, both going and leaving Treasure Island.

I am here as a non-motorized, watersport user. I am a windsurfer and I am here speaking on behalf of not only windsurfers but many non-motorized, watersport users who access the waters of the Bay from the northeast corner of Treasure Island.

This is specifically referenced in the Bay Plan 2006, Item 28 which talks about this ramp which accesses world class conditions that are only available from Treasure Island.

I want to be clear that in all the development that goes out at Treasure Island TIDA has been nothing but a friend to the windsurfers and non-motorized, watersports users.

And if we look closely at their plans they have it in there to develop a non-motorized, water windsport park at the northeast ramp which is exactly in line with the 2006 Bay Plan.

So therefore, the letter to TIMMA is fully supported and consistent with what has been going out there for years whereas the toll on non-motorized visitors to the Island for water sports is not consistent. And it is inconsistent with the permit that you issued.

And as a user of the Bay I saw it as a kind of quid pro quo that you would grant them the permit as long as they would maintain parking and water access at the ramp on the northeast corner of Treasure Island.

Thank you very much for supporting the water sports users.

Ms. Diane Oshima made public comments: This is Diane Oshima but I wanted to like John Coleman raise a toast to Brad McCrea. I thought he might be agendized for his farewell but on behalf of myself and my colleagues at the Port of San Francisco and many constituents

along the San Francisco Waterfront I want to express my thanks and gratitude for the 20 plus years that Brad has served on BCDC for creating an incredible foundation of institutional knowledge and collaboration and for all of the work that he has done with us to help shape so many of the projects along the San Francisco Waterfront.

Brad, you are a true friend. I'm really sad to see that you will be leaving the agency but I am so excited for your next chapter and what you'll bring to it with all of your urban design and architectural experience and wisdom.

So, good luck and thank you and I wish BCDC well. Happy Holidays everyone.

Mr. Dan Siskind addressed the Commission: I am Dan Siskind and I wanted to thank the Commissioners for the opportunity to speak.

I wanted to echo the thanks that Ross Libenson offered earlier for the letter that was written in support of continued access by recreational users to Treasure Island.

I know that it is an issue of concern for many people on the call and so that you don't have to hear the same thing from all of us perhaps the other windsurfers on the call who want to thank the Commission for their support can just put that in the Chat so that the Commission will know that we are here and that this is an important issue to us.

As somebody who goes to Treasure Island several times a week during the windy season it would be a real impediment to have to pay 15 dollars or more for each visit to Treasure Island and I think it will keep a lot of other recreational users, windsurfers, fishermen, paddlers from using what is really a unique access point to the Bay.

And so, again, thank you so much for your support. And I would ask that you continue to push back against efforts that will essentially subsidize one form of transportation for very wealthy future residents of Treasure Island at the expense of recreational users.

Mr. Jeffrey Finn was recognized: I am an old windsurfer, kite boarder, winger and I thank you for the letter too. I don't want to be redundant with other peoples' comments.

My concern is if the agencies approach you for a change to the permit that it goes through the public process as a material amendment so the public can comment on it again so it is not handled administratively without the public's input.

And of course I would find it prohibitive to visit Treasure Island if I had to pay five dollars each way to get there plus spilling over the Golden Gate Bridge. So thank you for your time.

Chair Wasserman moved to Approval of the Minutes.

4. **Approval of Minutes of the October 21, 2021 Meeting.** Chair Wasserman asked for a motion and a second to adopt the minutes of October 21, 2021.

MOTION: Commissioner Eklund moved approval of the Minutes, seconded by Commissioner Ahn.

The motion carried with no abstentions or opposition.

5. **Report of the Chair.** Chair Wasserman reported on the following:

a. **Implicit Bias Training:** I thank those of you who responded to one of us on the implicit bias training that we did. It was all positive and I know a number of Commissioners have expressed interest in follow-up and staff is working on that.

b. **Resolutions of Support for Bay Adapt:** I am grateful to those organizations who thus far have expressed their support for our Bay Adapt program. Hopefully any Commissioners whose jurisdictions have not expressed support can move that forward. And this evening we expect to as the ABAG Executive Board to do the same. If you have not Larry will provide a list to all of the Commissioners of those jurisdictions which have expressed approval thus far.

I have two other items to discuss. One, I want to mention a word. I've said it in the past. It is not a four letter word. It is an eight letter word. But it is a nasty word unfortunately or becoming a nasty word. And that word is Thwaites and specifically it is the Thwaites Glacier Ice Shelf in the Antarctic which is melting at a much more rapid pace than anyone expected.

There was an article this week in Science News reporting that it is feared that within three to five years there may be a major break in that ice shelf which could have a very significant effect on rising sea level.

Today, before any such disastrous event it is estimated that four percent of the rise in sea level is contributed by the melting of the Thwaites Glacier Shelf. If it fails the results will be dramatic and they will not be good.

This is simply an indication of several things. One, the importance of our work. Two, the fact that we need to increase the pace of our work. And third, that as much as we depend on science and scientists we need to recognize that they do not have a full understanding of the failure of these ice shelves or the glaciers.

And that failure may result in a dramatic increase in the projections over sea level rise not by the end of the century but in the next few years. We need to keep up our pace always.

And my last item is I want to join in the praise of Brad McCrea. I think the reason it isn't on the schedule is because there was a little arm wrestling between Brad and Larry and I think Brad in his humility won.

But, in fact, he has provided great support and leadership for BCDC. And I certainly have been privileged over my almost 10 years as being Chair to rely on his guidance in his areas and the support that he has given not simply to this Commission and our Commissioners but to the people in the Bay.

And although, as I think John said, he will not be serving us directly. I don't think he is going to disappear. I expect to see him around the streets of Oakland as well as hopefully participating in our civic and community efforts around the Bay.

Brad, thank you very, very much.

Mr. McCrea replied: Thanks, Chair Wasserman. It is much appreciated.

c. **Next BCDC Meeting.** Our next BCDC meeting will not be on January 6th but will be on January 20th. At that meeting we may:

(1) Consider adopting an uncontested cease and desist order for an enforcement matter on Spinner Island in Solano County; and,

(2) Hold a background briefing on the upcoming Seaport Plan Bay Plan amendments and the proposed deletion of the Howard Terminal at the Port of Oakland from the Seaport Plan.

d. **Ex Parte Communications:** That brings us to whether any Commissioners have an ex parte report to make. Again, you need to make these in writing but if there is any ex parte communications that you have had particularly over an item on this agenda or upcoming agendas that you wish to make now please indicate your desire to do so. (No reports were offered)

Executive Director Larry Goldzband will now present the Executive Director's Report.

6. **Report of the Executive Director.** Executive Director Goldzband reported the following: Thank you, Chair Wasserman for such a charitable introduction.

In 1773, the British Parliament approved The Tea Act which gave the East India Trading Company a monopoly on tea sold in the American colonies. In response, the price of tea in America dropped by a third. However, the Act demonstrated the Parliament's power to create monopolies, manipulate markets and bolstered the argument against "taxation without representation."

Pulitzer Prize winner Rick Atkinson labels the Act's passage as being "too clever by half." And, that is likely because on this date 248 years ago, Boston's Sons of Liberty, led by Sam Adams and Paul Revere, dumped hundreds of those chests containing over 45 tons of tea overboard from three British vessels sitting in the City's harbor.

King George wrote, "I am much hurt." Samuel Johnson called the Americans "a race of convicts [who should be] thankful for anything we allow them short of hanging." On the other hand, Adam Smith posited that Britain should ditch the colonies altogether.

The official British response was to double down and to clamp down on the colonies, which helped lead to "the shots heard 'round the world."

However, sometimes doubling down is a really good idea. For example, today you will hear about the tremendous progress of our enforcement team since the State Audit demonstrated that BCDC needed to improve our enforcement policies and processes and have more resources to improve that function and the Department of Finance agreed.

And, even before the Audit, our team had started moving in the right direction. You will remember that earlier this year, a state appeals court unanimously overturned a Solano County superior court judge's misguided decision against BCDC and the Regional Water Quality Control Board in the Point Buckler case.

Recently, the California State Supreme Court declined to hear an appeal of that appellate court decision. And, just a few weeks ago, the U.S. Supreme Court also declined to hear an appeal of that decision, meaning that John Sweeney has no legal alternatives remaining except to repair the damage to Point Buckler Island, abide by state law in so doing, and pay his fine.

a. **Budget and Staffing.** First off, I want to let the Commission know that we are losing three valued and very experience staff members at the end of the year. Linda Scourtis, our planning manager who has been BCDC's lead on both Seaport Plan updates and our key staff member who works with the State's Office of Oil Spill Response (commonly known as OSPR), is leaving us after 28 years of service. We'll miss Linda's calm demeanor and wise counsel. Cody Aichele-Rothman will take over some of Linda's OSPR emergency response duties with an assist from planning manager Erik Buehmann.

Anna Yee, who has worked at BCDC for over 20 years managing all of our contract and reimbursement processes also will retire. That she has been able to keep all of those books on the straight and narrow during all of BCDC's budgetary ups and downs is just short of amazing.

If any of you have trouble keeping your checkbook in line, I would bet that Anna could make a pretty penny consulting with you. Alex Ritchie, who signed on with BCDC just three months ago, will slip into Anna's role after she leaves, and we are fortunate that our new Budget Officer, Daisy Kaur, has a great deal of contracting experience that she can provide.

And finally, Regulatory Director Brad McCrea will be leaving BCDC after almost 24 years of service. I have leaned heavily on Brad during my tenure here. His ability to seal the deal (or, in our parlance, to "land the plane") on difficult regulatory issues has been most welcome.

Brad has a terrific feel for how to talk with people and come to agreeable conclusions. One of the Bay Area's leading developers refers to Brad as "a constructive pain in the ass." Replacing him will not be an easy task. We have recently expanded our search to be more expansive so that we can locate applicants with experience in multiple areas of regulatory functions. In the meantime, we have apportioned Brad's responsibilities starting on January 1 among Greg Scharff, Steve Goldbeck and me. I know that Brad now would like to say a few words to you.

Mr. McCrea addressed the Commission: Thanks, Larry and good afternoon everyone. I did write down some thoughts and it will take a couple of minutes to share.

For those who don't know me by now, I am Brad McCrea and for the next two weeks I am the Commission's regulatory director.

But starting in 2022 I will just be Brad, at least for a little while. And that's okay because my wife Jane and I have some ideas that we want to kick around.

I just want to say that when I joined BCDC in 1998 I was 35 years old. At that time I was doing planning and design working in the private sector. And just like that in 24 years I am on the other side of a career at BCDC.

And during that time I only had two jobs. Both of them focused on getting stuff built all around the Bay and over the Bay and in the Bay. And I spent a lot of time working with others to shape the built environment and the natural environment. And I was very lucky that way. And all along the way I met a lot talented people — land planners and developers and small business owners and scientists and concerned citizens, lawyers, designers, government officials — everybody.

And I really lucked out on the timing because in the 1990s I was part of a lot of grand projects, kind of grand schemes. Four new bridges across the Bay, huge wetlands projects, seaport expansions, waterfront revitalizations and I always had a seat at the table with hundreds of projects — new marinas and office developments and hotels and residential projects.

So for a results-oriented person like me who loves to see stuff get built it was and has been a perfect fit.

But when I look back at BCDC I am particularly appreciative of being given the opportunity to manage so many wonderful people in a fast-paced, high-profile, regulatory program here in the Bay.

Our regulatory managers basically run BCDC's regulatory program. Brenda, Ethan, Andrea, Rafael, Anniken, Priscilla who just left a couple of weeks ago — it is really an all-star team. And I am really proud to have had the honor of working with them.

But of course I have had a lot of help over the years. So I want to thank our Executive Director, Larry Goldzband for his unwavering support. I often tell Larry that my job is to keep his phone from ringing and keep him out of trouble. But Larry and I both know that it is him that keeps me out of trouble.

And lastly, there are my former mentors particularly Will Travis and Steve McAdam and Bob Batha all of whom showed that a regulator can be tough while also being pragmatic and empathetic and reasonable.

And lastly, lastly it's been great fun working alongside my fellow senior staff members Steve Goldbeck and Greg Scharff and Peggy Atwell and, of course, my counterpart on the planning side of the office, Jessica Fain.

And I think it is fair and accurate to say that the planning division and the regulatory division are no longer divided which is a really good thing around the Bay Area because we just heard that there is a lot of work to be done in the next 10 years given what the scientists are saying our future looks like.

So as I stand here today I know that some of BCDC's best work lies ahead. Chair Wasserman and Commissioners it's really been a privilege serving BCDC as a state employee serving the people of California for over two decades.

It's been fun. And the old adage is true, if you love what you do most days — it doesn't feel like work. So we will all continue to do the good work that we love to do.

And I guess I won't see a lot of you anytime soon so I want to send my best wishes to each and every one of you and all the faces I've seen on the screen and in person for so long and I really do hope to see you down the road.

Larry, back to you.

Executive Director Goldzband continued: Thanks Brad and we shall most definitely miss you but the show goes on. And for all of you who have staff or for all of you who know people and who might have suggestions for people to apply to somehow try to fill Brad's size 17 shoes, we will take all comers. So please do think through that.

And meanwhile as I have told everybody, nobody leaves BCDC without getting my approval and even if they do we always keep them as part of the family. So Brad will no doubt be part of us going forward — so thank you.

So, now for some good news. I've asked Becky Smyth of NOAA to give us a short description of how NOAA has fared in the recently-approved federal infrastructure bill which will affect the way BCDC operates. And after Becky, Amy Hutzler, the Coastal Conservancy's newly-appointed Executive Officer, will augment that with some Bay-centric information about how federal funds will be flowing into the Bay Area. So Becky do you want to start off?

Ms. Smyth addressed the Commission: Yes, thank you, Larry. I really appreciate the opportunity to address the Commission. Good afternoon, Chair Wasserman and Commissioners. I am Becky Smyth NOAA's Office for Coastal Management, West Coast Regional Director. And I am privileged enough to live and work in the Bay Area so I know your work personally as well as professionally.

Our office is the federal partner to the California Coastal Program which includes BCDC, the Coastal Conservancy and the Coastal Commission.

We are really excited about the Infrastructure Bill. It is unprecedented in my lifetime — 1.2 trillion dollar investments over the next five years. And there is still potentially more to come in the Build Back Better Bill and depending on the day the odds seem to be a little thumbs up, thumbs down on that one. So what we do have is \$1.2 trillion in hand.

NOAA has received a lot of money that affects the work that BCDC and all the coastal management agencies work on here in California.

So within the NOAA pots there are 207 million dollars across the five years for the Coastal Zone Management Programs. So we are allowed to provide some funding for capacity for the coastal programs but Congress does want mostly on-the-ground projects with this money.

So we will be competing across the 34 states and territories that have coastal management programs for projects that involve habitat restoration and ecosystem preservation that includes land acquisition. And the max for each state will be five million from that pot just to make sure some equity across the states because we know California could eat up that entire 207 million in one year.

Similarly, the National Estuary Research Reserves which are also our partner has 77 million for habitat restoration and ecosystem preservation.

And, of course, we do have a San Francisco Bay Reserve. So they and their partners will be eligible for funding for that.

In addition, we have a billion dollars for some sort of restoration, coastal resilience split into two programs. One is the National Coastal Resilience Fund. This is a partnership with the National Fish and Wildlife Foundation. It has been happening for the last five years and its goal is to promote community resilience that also benefits fish and wildlife — so nature-based infrastructure.

It has everything from planning and capacity building grants to actual implementation. So, for instance, Santa Clara County two years ago got money to update their resilience plans. And last year the West Bay Sanitation District got five million dollars to help with their horizontal levee construction. So the Bay has benefitted from this.

The Partner Program is over in the Fisheries Service. That is 491 million dollars and that is for community-based restoration with a focus on fish and wildlife but also floods that affect communities.

There is \$150 million for marine debris. We all know that is a continuing issue.

There is also \$492 million for inundation mapping, modeling and observation including precipitation which is really exciting because as we can all appreciate this past week — that will help us with storm weather flooding and that is something that we need to catch up on. It is not just the sea rising; it is also the storms changing.

And so those are the big parts. We are working to get some resources together for our partners who need to figure out which pots to apply to, when — because this is a lot of money and that is just NOAA.

And so helping navigate what all this money may mean so everyone is most successful at getting this money. Our goal is to get this into the hands of your partners and you as quickly as possible.

So I'll pause there and Larry, should I turn it over to Amy?

Executive Director Goldzband replied: Sure, let's ask Amy to share her screen and show so more good news.

Ms. Hutzel presented the following: I am here and I just wanted to join in on the Brad McCrea festivities. He has been one of my favorite people to work with over the years and he has a wonderful smile. It has been really fabulous to work with him to set up the Bay Restoration Regulatory Integration Team. So I am going to miss him.

Mr. McCrea stated: Likewise, Amy — thanks.

Ms. Hutzel continued: Yes, thank you Brad.

Executive Director Goldzband added: I just want to say on behalf of BCDC, Amy — we are thrilled that you are the new Executive Officer of the Coastal Conservancy.

You have certainly different-sized shoes to fill to follow Sam Schuchat but I look forward to your staff and our staff not allowing you and me to sit next to each other in meetings just like you didn't used to allow Sam and me to sit next to each other in meetings.

So we look forward to continuing the strong work and partnership that we have. And we thank you.

Ms. Hutzel acknowledged: Thank you, Larry. Thank you for that welcome and I really look forward to continuing to collaborate with BCDC on projects in San Francisco Bay.

And what I was planning to talk about with the Infrastructure Bill — trillions of dollars in the Bill, billions of dollars for different agencies, hundreds of millions for different programs; and then when you get down to restoration funding for San Francisco Bay we're talking about much smaller slices of the overall pie.

And I am going to talk about a couple of areas we're very focused on. I would say there are other sections of the Infrastructure Bill — I mean half of it is surface transportation as well as waste water, storm water; I mean these other larger pots of funding could potentially support shoreline resilience work.

So I just want to put what I'm saying in the context of this is a much larger pot of money that we should be reading through the thousands of pages of the actual Infrastructure Act and working to identify how we can tie it to shoreline resilience.

This is a presentation I just gave to the Bay Planning Coalition at a workshop they had about the Infrastructure Act. The first area I am going to talk about is the Army Corps of Engineers which is a big area of interest for the Coastal Conservancy in terms of funding for our projects.

And the Corps of Engineers nationally received \$150 million for general investigations, close to \$12 billion for construction and within that I just highlighted a few areas that are of greatest interest to us. And then another four billion dollars for O&M dredging.

On top of this the Corps of Engineers in FY 2022, if there is a budget this year, will be receiving the highest level of construction funding ever. I think it is seven billion dollars in the FY 2022 Budget.

So the Corps has significant funds and they are in the Infrastructure Act, it is not allocated out to different projects or programs. It is the Corps of Engineers along with OMB and the assistant secretary of the Army for civil works who will put together and are now putting together the work plan for this funding and getting it back to Congress.

The first work plan is for the funds they plan to expend in FY 2022. And there is the possibility that work plan will come out before Christmas.

So this is all happening very quickly and we are — we are pushing hard on our priorities which are at the bottom of this slide.

So Hamilton, Bel Marin Keys where we are asking for 90 to 105 million dollars of federal funding — that would be the whole federal cost-share for the project.

For the South San Francisco Bay Shoreline Project, the Phase 1 portion in the city of San Jose — we are asking for \$108.3 million of federal funding to fill in the federal shortfall for the project.

And then for our Beneficial Use Pilot Program under Section 1122 we are asking for \$25 million and then some smaller projects like a Cap 204 Study for Cullinan Ranch, a Continuing Authorities Program Study and funding for the South San Francisco Bay Shoreline Project, the Phases II and III. Those are in the Study portion so that would fall under General Investigations not Construction.

And that is for the Palo Alto through Sunnyvale segment of the shoreline project.

This is the map of the South San Francisco Bay Shoreline Project in San Jose. It's a four mile levee that takes into account some amount of sea level rise and allows for 3,000 acres of tidal wetlands restoration of these former salt ponds.

This project we received \$124 million of the Bipartisan Budget Act funds a few years ago, federal funds. And the Corps has kind of worked themselves into a little box that they can't apply Non-Bipartisan Budget Act funds to a Bipartisan Budget Act funded project which is really unfortunate in terms of bringing additional funds to bear and we are working through that.

And hopefully Senator Feinstein is going to resolve this with some legislation.

And then the Hamilton/Bel Marin Keys Project up near the city of Novato. We completed the Hamilton Airfield portion a number of years ago. It is evolving very nicely to tidal marsh. We used about six million cubic yards of dredged sediment mostly from the Port of Oakland.

We just finished construction of the levee at Bel Marin Keys to divide the seasonal from the tidal wetlands portions of the project. And now the next step is to bring in millions of cubic yards of dredged sediment for the Bel Marin Keys restoration.

So we want to work with the Corps of Engineers under our Cost-Share Agreement and have them focus on offloading sediment for Bel Marin Keys.

And then our Section 1122 Project, the Resilient San Francisco Bay Project — I want to really thank Brenda Goeden for working with me on the original proposal for this a few years ago. This is under the Beneficial Use Pilot Program that was established in a previous Water Resources Development Act.

We were one of 10 selected projects nationwide out of over 90 proposals. The Corps of Engineers is moving forward on a strategic aquatic placement test and that part of the proposal is fully funded — that's about 3.6 million dollars.

Our original proposal was for 51 million dollars and primarily focused on the direct placement of beneficial use around San Francisco Bay at sites like Montezuma and Cullinan and Bel Marin Keys.

So this group of folks; the logos represent a coalition that recently sent in a support letter asking for \$25 million for this program. So we are cautiously optimistic that the Corps will use some of their billions of dollars this fiscal year to cover that incremental cost for direct placement of beneficial use.

And then I also just wanted to mention another agency — US EPA — that in the Infrastructure Act received \$1.7 billion for geographic programs across the country.

A billion of that was for the Great Lakes. So you can see how it quickly gets dispersed across the country.

For San Francisco Bay there was \$24 million which over the next five years will basically double the amount of funding that EPA has for the San Francisco Bay Program.

And these funds will be distributed through RFPs. And Luisa Valiela at EPA really administers and runs this program.

We are still working on getting an authorized San Francisco Bay Program within US EPA and there is work — Congresswoman Speier and Senators Feinstein and Padilla are leading up that work. And with Speier retiring at the end of this term I think she really views this as one of the legacies she could leave. So hopefully this will happen before she leaves office.

And then EPA also received \$132 million for the National Estuary Program. And that will translate down to five million for the San Francisco Estuary Program over five years — so a million a year which is also a significant increase for SFEP.

And Becky already talked about NOAA but there are several pots within NOAA funding and we are most excited about the Coastal Zone Management funding but also funding for the National Estuarine Research Reserve System and the NOAA Community-Based Restoration Program.

So we are going to work hard to be applying for grants through NOAA and EPA for San Francisco Bay.

Executive Director Goldzband continued: Thank you Amy. Commissioner Eklund I noticed you had your hand up. We did not agendize this which means we can't really have a discussion about it.

But I will say I'd love to hear your question and then Amy can certainly — you and Amy can go offline and discuss an answer. I hope that Shari Posner thinks that this is actually okay.

Ms. Posner chimed in: I am here and it might be best if the question is posed and then if we see where we are at it might be the kind of thing that an answer could be reported back to the entire Commission for reasons that I'm sure you understand.

Executive Director Goldzband reiterated: We just have to be careful.

Commissioner Eklund continued: First of all, Amy it's great to see you again. Our paths have crossed for the past two or three days. I'm really excited about all of the funding opportunities that the San Francisco Bay and the total estuarine has gotten.

The city of Novato is very, very interested — as you know we are working very closely with the Coastal Conservancy on the Bel Marin Keys Estuary Project but part of that we want to extend the Bay Trail from Hamilton to Bel Marin Keys.

And I know the Coastal Conservancy is supportive of that. And funding is always an issue. The question is any of this funding available to be put into the Bay Trail on portions that have not been done? Have requests been made and if not, why not? And is it too late to make a request?

So if you can't answer those because it wasn't agendized I totally understand but if we could just get some answers that would be awesome because every meeting of San Francisco Bay that deals with Hamilton or wetland restoration I always ask that question because the Bay Trail will help a lot of entities and this a need of city of Novato, ABAG and a lot of others.

Ms. Hutzel replied: Yes, I can answer that briefly if Shari could cut me off if I shouldn't be doing this.

Ms. Posner advised: I think if you keep your answer in very general terms it's fine. Obviously the Commissioner referred to some specific projects and to me that raises concern about a larger number of people being able to comment because I am sure there are other projects as well. But if there is a very general answer I think we would be comfortable with that.

Ms. Hutzel acknowledged: The general answer is the request for the Bel Marin Keys funding is for the entire Corps-authorized project which includes the recreational element. It does not address the gap from Hamilton to the Gallinas Spray Fields.

Commissioner Eklund responded: Thank you.

Ms. Smyth commented: One of the differences in the flavors of a lot of the Infrastructure money is I know we have the ability to waive match requirements that are often tied to our base appropriations and money.

So while we would still like to see it — we don't need it. We are probably going to waive it from most of our program so that communities and areas that generally struggle to get successful projects because they need the match should be a little bit more eligible than in past appropriations.

So I just want to make sure the Commissioners were aware of that because that's an important thing to know with all this money going out the door. You don't need match.

Executive Director Goldzband chimed in: More good news. Alright, thank you both. Amy certainly can be reached at the Coastal Conservancy and the same with Becky through NOAA and they are more than happy to answer questions. And we are also happy to put you together too if you have questions.

So we really appreciate it. We thought you would appreciate in these days leading up to Santa Claus that perhaps the federal government did its job as well.

So we look forward to money coming down the chimney and heading into San Francisco Bay.

b. **Policy Issues.** I am required to let you know that BCDC has issued three emergency permits since the last time the Commission convened. The administrative listings for these emergency permits were included in the Commission materials e-mailed to you on November 12th and December 9th.

On November 4th, BCDC issued an emergency permit to the State Lands Commission to install a fence to prevent public access to the hazardous demolition site of the former Nantucket Restaurant in Crockett which posed an immediate threat to public health and safety. The permit requires that the fence be removed once the hazards at the site are removed, or by the end of 2023, whichever is earlier.

On November 19th, BCDC issued an emergency permit to Clipper Yacht Harbor in Sausalito to replace three damaged piles to secure a dock that had become dislodged in the major atmospheric river storm. It posed an immediate threat to adjacent boats and docks.

Finally, on December 1st, BCDC issued an emergency permit to the East Bay Regional Park District to install a 126-linear-foot rock riprap revetment in the Commission's shoreline band jurisdiction, adjacent to the Boardsports California Surf Shop along Robert W. Crown Memorial State Beach in Alameda.

That same atmospheric river severely eroded the beachfront in front of the shop. That created an immediate risk given that the shop and its facilities could be severely damaged during the king tides or other winter storms.

With regard to permitting and the pandemic, BCDC has allowed over 20 restaurants around the Bay to extend their outdoor dining facilities previously reserved for public access as required by permits to make up for reduced seating inside their restaurants.

In May, seven months ago, BCDC extended until the end of this year the ability of restaurants to utilize such required public access areas without having to amend any relevant permits.

Since then we have changed that deadline to only require that participating restaurants submit a permit application by December 31st asking to continue to use those public access basis.

BCDC staff will work with the applicants to determine whether and how the currently-permitted access spaces could be changed in light of local and regional public access needs.

However, restaurants that do not apply by year's end will need to vacate those previously-permitted public access areas they currently occupy and restore them to their original condition by January 3, 2022 or be subject to an enforcement action.

So far, 10 restaurants have applied for permit amendments. I do want to note that the new uncertainties surrounding variants makes it possible that restaurants will need to change their customer-serving policies before the end of the year or early next year, perhaps based on revised state and/or local public health orders.

And, should such changes occur, BCDC certainly will adapt our requirements to meet the needs of the restaurants just as we did earlier in the pandemic. We will give you and update at your next meeting.

That concludes my Report, Chair Wasserman, and I am happy to answer any questions.

Chair Wasserman asked: Any questions for Larry?

Commissioner Eklund spoke: Chair Wasserman, this is probably my naive nous but in the future are we informed of what enforcement actions are currently being discussed and any potential uncontested agreements? Are we informed that this is going on at an earlier time rather than at the tail-end of the process?

Executive Director Goldzband explained: The answer essentially, Commissioner Eklund, is — no. And that is that for the most part enforcement actions because they are quasi-judiciary and fall under ex parte rules and are handled by the Enforcement Committee tend to simply follow in that role.

We are certainly able to, if you would like, provide you with a list of enforcement actions within Marin County, if you'd like.

Commissioner Eklund responded: Yes, yes.

Executive Director Goldzband stated: And we'd be happy to do that.

Commissioner Eklund added: I would love a copy of that. I appreciate that a lot. Thank you.

Executive Director Goldzband replied: You bet.

Chair Wasserman continued: Any other questions for the Executive Director? (No further questions were voiced) Seeing none, that brings us to Item 7, Consideration of Administrative Matters.

7. Consideration of Administrative Matters. Chair Wasserman stated: We have received a report of those. Anybody want to take their last shot at Brad to explain an administrative action? (No questions were voiced)

Any public comment?

Mr. Andrew Sullivan gave public comment: My name is Andrew Sullivan from the San Francisco Board Sailors Association. I just wanted to briefly thank the BCDC for their letter to Rachel Hyatt of the SF CTA signed by Ethan Lavine informing the SF CTA that their Treasure Island BCDC permit was granted without consideration of a toll.

All of the board sailors in the community on Treasure Island thank you for that letter. I also wanted to ask that any changes to the permit go through the public process as material amendments so that the SFPA might be able to have an opportunity to participate in that process.

Chair Wasserman acknowledged: Thank you, Mr. Sullivan. Any others? (No further comments were voiced)

8. Commission Consideration of a Contract with the Tioga Group to Undertake Analytical Work Related to the Seaport Plan Update (BPA-1-19). Chair Wasserman announced: That brings us to Item 8, consideration of a contract with the Tioga Group to undertake analytical work related to the Seaport Plan Update. Cory Mann of our planning staff will present the item.

Planning Analyst Mann addressed the Commission: Hello everyone, good afternoon Chair Wasserman and Commissioners.

This afternoon the staff recommends that the Commission authorize the Executive Director to execute a contract of up to \$9,999.00 with the Tioga Group to undertake analytical work for the San Francisco Bay Area Seaport Plan Update which Bay Plan Amendment 119 and the proposal to remove the Port Priority Use Designation from Howard Terminal at the Port of Oakland and that is Bay Plan Amendment 219.

BCDC staff had previously worked with the Tioga Group on matters related to the Seaport Plan and Howard Terminal. Tioga is a specialized freight transportation and logistics consulting firm serving public agencies, shippers, carriers, port developers, policymakers, suppliers and industry organizations.

Tioga personnel have qualifications and experience in strategic planning, public policy analysis, economics, trucking, rail ports intermodal logistics and project implementation for the public and private sectors.

But most relevant to BCDC the Tioga Group prepared the 2019 to 2050 Bay Area Seaport Forecast. The Forecast was adopted at the third Seaport Planning Advisory Committee meeting and is going to inform many elements of the Updated Seaport Plan.

BCDC staff is now in the latter stage of reviewing the Seaport Plan and as a technical document there is a need to execute a contract to undertake analytical work.

It includes advising staff on Port Priority Use Areas and terminal designations, reviewing the update to the Seaport Plan for technical accuracy and conformity with the New Cargo Forecast, determining the impact of endemic area trade and port developments on cargo capacity estimates and appearing at Commission meetings to answer technical questions about the Bay Area Seaport Plan and the Cargo Forecast.

We anticipate that the Seaport Planning Advisory Committee will meet next in late January to review the Draft Seaport Plan after which staff will be bringing the new plan to the Commission for consideration this spring.

This analytical work may also include minor overlap with the Howard Terminal Amendment. So, for example, possible updates to cargo throughput trends could factor into the Seaport Plan as well as the Commission's consideration of the Howard Terminal Amendment.

However, we note that the focus of this contract is on the General Seaport Plan Update and is a supplement not a replacement for the existing agreement that BCDC has with the Oakland As regarding funding.

This contract with the Tioga Group will provide additional services to support the application of the Forecast and the Commission's decision-making process and thus, accordingly, the Commission's staff recommendations that the Commission authorize the Executive Director to enter into and execute a contract of up to \$9,999.00 with the Tioga Group to provide the technical expertise on Port-related issues and cargo forecasts to enable staff to complete the Draft Seaport Plan.

So, thank you and I'd be happy to take any questions.

Chair Wasserman asked: Any comments from the public? (No public comments were voiced) Questions from Commissioners?

Commissioner Gioia was recognized: So I know that normally the applicant going forward will be paying for studies here and I just wanted to understand — it said in the Staff Report that we had received some MTC funding for some of this; so who is paying for this contract?

Ms. Jessica Fain responded: I am happy to answer that question. So this would be funding that would be BCDC General Fund funding.

We do have various pieces of this giant work plan that come from different sources but this particular funding would be BCDC General Funds.

Commissioner Gioia continued his inquiry: The detailed studies on Howard Terminal; isn't that ultimately going to be paid by the applicant?

Ms. Fain concurred: Correct. So we have an existing contract with the Oakland As and they are funding staff time to support our staff time on the amendment as well as environmental assessment work and other pieces of this.

At the same time we are also doing the overall General Seaport Plan in which our contract with MTC, some of our own funding as well as some contributions from all of the regional ports are helping to fund that overall planning effort.

So, there are many pieces to it.

Commissioner Gioia continued: Why is it \$9,999.00 — is there some magical other requirement for \$10,000.00 and more? Can you explain that and are we looking at subsequent extensions of this contract in the future? So why is it \$9,999.00?

Ms. Fain replied: Maybe Peggy would be the best one to answer that question. I believe it has to do with the — it tips the threshold into our DGS contracting requirement.

Ms. Atwell chimed in: Commissioner Gioia, it has a lot to do with the state requirements around contracting and the procedures around that.

Commissioner Gioia voiced his understanding: So, in other words, this is a quicker contracting process than going through another process.

So are you anticipating an extension of this contract?

Mr. Buehmann chimed in: This is Erik Buehmann. I am the planning manager working on the Seaport Plan. At this time we don't anticipate that. We anticipate that, hopefully, it will cost less than \$9,999.00 to have this service. We picked that number so that we, hopefully, won't need that.

Commissioner Gioia stated: Okay, I was just wondering because if ultimately it comes to, let's say, a \$50,000.00 contract with five separate \$9,999.00 extensions, that's obviously —

Executive Director Goldzband interjected: We're not going to do that, Commissioner Gioia.

Commissioner Gioia stated: I want to make sure that is not what we are going to do here. (Laughter on assorted screens)

Executive Director Goldzband reiterated: We are not going to do that.

Commissioner Gioia added: Especially on this issue which everyone is watching very carefully and we want to make sure we are following all the guidelines — right?

Executive Director Goldzband agreed: Correct.

Ms. Atwell added: Correct, that's why it is in front of all of you today.

Commissioner Gioia acknowledged: Got it. Okay, thank you.

Chair Wasserman asked: Any other questions from Commissioners? (No further questions were voiced) I would entertain a motion for approval.

MOTION: Commissioner Nelson moved approval of the Staff Recommendation, seconded by Commissioner Eisen.

VOTE: The motion carried with a vote of 20-0-1 with Commissioners Addiego, Ahn, Eckerle, Eisen, Eklund, Gioia, Gunther, Hasz, Moulton-Peters, Pine, Randolph, Showalter, Wagenknecht, Arreguin, Gilmore, Kishimoto, Pemberton, Nelson, Vasquez, and Chair Wasserman voting, "YES", no "NO" votes, and Commissioner Beach voting "ABSTAIN".

[Note: Agenda Item 12 was taken out of order and was heard after Agenda Item 8.]

12. Briefing on Enforcement Program. Chair Wasserman announced: As I stated earlier, we are taking up the Item 12 staff briefing on our enforcement program. Adrienne Klein of our enforcement staff will provide the briefing.

Principal Enforcement Analyst Adrienne Klein presented the following: Thank you, Chair Wasserman for the introduction. I am Adrienne Klein one of your enforcement analysts and I will be providing this end-of-the-year Enforcement Program update for you.

We will run through the program goals, the contributions of the Enforcement Committee, the status of our cases as of the end of the year, a few details on a 2020 Cease and Desist Order at Union Point Park in Oakland and next steps.

The program runs with the goal of deterring violations at all or deterring repeat violations. We aim to treat everybody the same, to communicate clearly and to operate fairly.

The contributions of the Enforcement Committee were to hear updates from the city of Oakland on its ongoing efforts to restore Union Point Park to a usable public state after an encampment was there for a number of years.

They provided feedback to the staff on the oldest cases that we are working on. And they gave us guidance on the resolution of some complex cases.

This is an overview of the place where the Enforcement Program was at the end of 2020. So that is the first of these columns. You can see that during the course of the last 11 months, this report concludes as of November 30th.

The case load has effectively dropped in half and you can see the rate throughout each of the four quarters of the year.

So we have reduced the number of oldest cases that are pre-2000 and only two are open as of today. We've reduced the number of cases that were from 2000 to 2017. They went from 104 to 31. And then the other cases went from 102 to 67.

The single order issued this year is the matter that you will be considering next. We have negotiated a number of settlement agreements. Several of those have come to the Commission including the agreement with the Richardson's Bay Regional Agency in Marin County and others of those are staff negotiated agreements.

You can see that the rate of case closures exceeded the number of cases that were opened.

This is a graph image of the last point which is that the overall rate of cases was able to reduce, the gray line, because in spite of the fact that — because more cases were closed, the orange line, than opened — the blue line.

In terms of fines and civil penalties, you can see that there were some that came in over the course of the year totaling just under \$150,000.00. There was one significant penalty of about \$132,000.00. There was a \$28,000.00 penalty and then a number of smaller penalties.

This is a pie chart version of where cases were a year ago. I have two of these pie charts to share with you. The pending case status — the active and pending case status is shown in orange and gray are sort of the beginning phases of the cases. And what you will see on the next slide is that we have fewer cases in this stage and more cases in the Investigation and Resolution Imminent stage.

As of November 30th there were more cases closer to resolution at the end of this year. So that is good progress.

With that I will shift to some case-specific updates on the Union Point Park 2020 Cease and Desist Order. This was a complex matter for the city of Oakland to address. As a result the resolution was phased.

You can see from the slide notes that the City had to, following issuance of the uncontested order, develop an Enforcement Plan, develop a Park Restoration Plan and those were submitted and reviewed by staff and modified based on staff comments and are in the process of being implemented.

So the final phase to restore the Park is being planned. Your staff met with City staff this week and they are on target to meet their April deadline for making the improvements in the Park that are necessary to restore it back to its full public access condition.

In terms of potential threats that may adversely impact the public access there have been no new reports of encampments at the Park.

There was an abandoned vehicle but that was addressed and removed. And there are two vessels offshore from the Park and the police department is regularly monitoring those. They are at present unoccupied.

Moving forward the staff is hopeful that the final changes to the Commission's regulation pertaining to enforcement will be approved by the Office of Administrative Law next year.

We are hopeful that at some point in the future we will have an integrated database so that we can integrate the permit and enforcement information that we have. We do fairly well at this point but a state-of-the-art system would serve your staff well. And we're hopeful that in the future we will have some compliance officers.

As always we are continuing to open and resolve the cases that we become aware of or that are reported to us.

And that concludes our presentation. If the Commission has any questions we are happy to answer those. Thank you.

Chair Wasserman asked: Any questions from the public? (No questions from the public were voiced) Questions from Commissioners? (No questions from Commissioners were voiced)

Commissioner Gilmore commented: We have come a long way since our State Audit. At that time we had approximately a little less than 300 cases that were going through the process and were backlogged.

Now today, we're down to 100. This just goes to show how diligently staff has worked, how hard everyone has pulled together to focus on the procedures to make us more efficient and the fact that these procedures and processes have worked.

So it is a great tribute to staff and staff's leadership. I am sorry that Priscilla is gone but she was certainly at the forefront of all of those procedural changes and procedures to put into effect.

Congratulations to staff — it's been a lot of work but you have done a remarkable job. So, thank you.

Chair Wasserman asked: Comments from other Commissioners?

Commissioner Nelson commented: The Commission has and the staff has paid real attention to these enforcement issues. And that pays off in two ways.

First, we can see the really impressive progress in resolving enforcement cases and I really commend the staff and the Enforcement Committee.

I also want to note that agencies get reputations if they don't enforce. If you develop that kind of reputation you wind up with more enforcement actions. So over time I am hopeful that this more efficient, more effective enforcement program will result in fewer enforcement actions for the Commission to handle.

Chair Wasserman asked: Any other Commissioner questions?

Ms. Atwell noted: No other hands raised, Chair Wasserman.

Executive Director Goldzband was recognized: As much as we really enjoy the fact that Commissioner Gilmore chairs the Enforcement Committee she gave herself short shrift.

Yes, staff has worked hard. But the Enforcement Committee has worked diligently and has put in long hours over the past few years to get this stuff right — not just individual cases but literally going through the new regs and the old regs line by line and dealing with processes and working with Priscilla and Karen and Brent and the rest of the staff, Adrienne, Mathew and John to get this really made into a program.

And we need to congratulate and thank the Enforcement Committee just as much as the Enforcement Committee has thanked staff.

And the second thing I would say is that I totally agree with Commissioner Nelson, you do get a reputation. I should mention that those folks who essentially caused the Audit to be started always pointed to Point Buckler as a mistake by the Commission and by the enforcement program due to the misguided decision of one soon-to-be-retired local judge which as I said earlier has now been overturned and upheld by both the State Supreme Court and the United States Supreme Court.

We hope that this type of reputation building will go a long way to ensuring that permittees really come forward and work with us so that we can amicably make sure that the Bay is protected and the enforcement program continues.

Chair Wasserman chimed in: Amen. If there are no other comments we will turn to Item 9.

9. Public Hearing and Vote on Enforcement Committee Recommendation to Adopt Proposed Uncontested Cease and Desist Order and Civil Penalty Order CCD2021.001.00. Chair Wasserman stated: Item 9 is a specific enforcement matter, public hearing and vote on the recommendation to adopt a proposed uncontested Cease and Desist Order and Civil Penalty.

Commissioner Gilmore spoke: Thank you, Chair Wasserman. The Enforcement Committee unanimously recommends that the Commission vote to issue the uncontested Cease and Desist Order CCD2021.001.00 to the Rudolph G. Koppl Trust.

On November 17, 2021 the Enforcement Committee heard testimony in this enforcement matter and determined that the Koppls are in violation of the McAteer-Petris Act and its BCDC permit.

The Koppls do not contest the issuance of the Cease and Desist Order and the Committee determined that the remedial action and penalties proposed by staff were appropriate.

I will now ask Adrienne Klein to present the case to the Commission along with a summary of the proposed uncontested Cease and Desist Order.

Ms. Klein addressed the Commission: Thank you, Chair Gilmore for the introduction. So while the Enforcement Committee's recommendation cannot serve as a final determination, the Commission needs to make a final determination on this recommended enforcement decision.

I will briefly review the site location, the past permit history, share a few photos as I describe the violations, the resolutions that we are proposing about the injunctive relief and the civil penalty.

The respondent, Mark Swanson of Jamba Construction who is the primary contact that BCDC has had representing the Koppls is with us. He had to reschedule some meetings. I know he will be here if he can.

Ms. Atwell noted: Adrienne, he is here.

Ms. Klein acknowledged: Thank you so much, Peggy. He will share the Enforcement Committee's recommendation.

This project site is located in Marin County, in Belvedere and we have two images. Belvedere is located on the east shoreline of Richardson Bay shown in the image on the right. The address is 46 Cliff Road. It is a single-family residential construction project. And the red arrows are pointing to the site.

This vacant lot is on a steep hillside and the public streets in the neighborhood are winding and also steep.

As a result of these conditions when the City issued its permit it requested that the permittee, the Koppl family, conduct material deliveries by water. Three years later the BCDC permit application only requested construction in the shoreline band and therefore did not authorize work in San Francisco Bay.

The prior permittee sold the property in 2019 when it was purchased by the Koppls. There is a condition in all of your permits that the permittee assign the rights and obligations at the time of transfer and that did not occur. That is not an uncommon permit failure.

But it would have provided notice to the Koppls of the permit requirement. Nevertheless, the permittees were aware of the permit. And Mr. Swanson did submit the updated construction plans before commencing construction in January 2020.

However, he did not explicitly inform BCDC that work in the Bay would occur. And he did not flag for staff the conflict between the work on the local and state permits. So we were unaware of that conflict.

This is an image of the water delivery that did commence in the beginning of 2020, last January during the period when work is not allowed in Richardson's Bay due to the sensitive nature of the resources including the Pacific Herring that are spawning during this time and on the subtidal eel grass beds in this location.

So you can see a barge that was parked offshore and a landing craft filled with gravel that was transferred to the shoreline.

This is a photograph of the site and you can see that the gravel was being used to construct what is called a gabion platform which is essentially cages filled with rock in order to create a stable construction platform.

That platform was intended to be used for future deliveries and also for placing equipment such as a crane.

The next image shows the path of travel of the landing craft and it also shows the subtidal eel grass habitat that is located offshore in the green cross-hatched area. The red line shows the path of travel. The white rectangle is the landing craft.

There was subtidal eel grass damage as a result of the shallow intertidal conditions in this location as well the rocky intertidal beach where the platform is located is impacted and a portion of that platform is located in your Bay jurisdiction as the blue line indicates the mean high tide line and the water side of that is the Bay.

So while the majority of the platform is located in the shoreline band and does extend north beyond the image, a portion of it is in the Bay. Again, no work in the Bay was authorized.

This is a final photograph from the opposite angle.

So these unauthorized activities resulted in approximately 102 square meters of subtidal impact to eel grass beds offshore of the site.

BCDC made early contact with Mr. Swanson through the California Department of Fish and Wildlife who discovered the violation and reported it to the appropriate agencies.

Mr. Swanson has been cooperative throughout our negotiations and has agreed to the recommendation, and hired competent representatives to provide the information used as a basis for this recommendation.

So by the end of this year we expect to receive an application to enable us to authorize that restoration, which is a regulated activity.

We originally crafted this order to allow the permittees to pursue approval for water deliveries and retention of the gabion platform but in the intervening time between the November 17th hearing and today's date the Regional Water Quality Control Board has issued communication to the Koppls recommending removal of the gabion platform.

So it is expected that a removal plan will be submitted and approved by agencies and that the platform will be removed fairly early next year.

The details of the site restoration will be addressed in a permit application not in this recommended enforcement decision.

In terms of a civil penalty the Enforcement committee recommends a \$45,000.00 civil penalty to be paid in five payments in full by mid May 2022 as follows: For six days where we have evidence of the unauthorized material deliveries and offshore equipment we are recommending the daily administrative maximum of \$2,000.00 a day for \$12,000.00, For the platform construction which has been constantly in place for nearly two years we are recommending \$23,000.00 and we are recommending \$2,000.00 a day for each of five so-called paper violations which could have led to the avoidance of this matter.

And the respondent has agreed to the proposed terms of this uncontested matter, as mentioned, been cooperative and retained qualified experts to assess impacts.

They have agreed to pursue and implement the terms of a permit to enable restoration and to pay a civil penalty.

That concludes staff's comments through the chair of the Enforcement Committee and we do have a recommendation following a statement that Mr. Swanson would like to make and any public comment that may be forthcoming.

Chair Wasserman continued: Mr. Swanson?

Mr. Swanson responded: Yes. Good afternoon. I just want to thank everyone on the Commission for their public service. I want to thank Adrienne. I want to thank the Enforcement Committee. I want to wish all the people that are leaving to pursue future endeavors the best. And I want to wish everybody Happy Holidays.

I recognize and realize that this matter — that a BCDC permit runs with the owner of the land. And one thing that is important to me is having said that — is to make it known that the Koppls or the Koppls Trust really aren't — you know, it just really makes me uncomfortable that their name is on this. I'm taking responsibility for it.

I'm going to pay the penalty and I just feel better about saying that because that's right.

And I apologize for any time and effort that I've caused anyone and perhaps everyone has gone through all the details of the matter and read the history. If you haven't I think you will find it to be a bit of an interesting scenario. But at the end of today I agree to these terms and I'm going to stick to them.

And again, I just want to wish everyone the best. Thank you.

Chair Wasserman acknowledged: Thank you, sir. The public hearing is open. Are there any comments from the public?

Mr. Ritchie stated: Chair Wasserman, there are no public comments.

Chair Wasserman continued: Are there any questions or comments from Commissioners?

Commissioner Moulton-Peters was recognized: I just wanted to understand — if the gabion platform goes away in early May; I wanted to just understand how construction will proceed without that platform or does this assume that the need for that platform is accomplished by the May date that was on the slide?

Ms. Klein fielded this question: No in-water work has been allowed in the past period of time, the past two years.

Mr. Swanson, as most general contractors are, is resourceful and creative and used to facing and solving complex problems and that is exactly what he has done.

So the project is proceeding absent water deliveries and whether he will need to do any portion of the project from the water in the future is to be determined. He would need to re-engage with the agencies with the new proposal.

Commissioner Moulton-Peters replied: Thank you for that. The situation on Cliff Road is it's virtually 10 feet wide and it is not terribly accessible which is why the city of Belvedere encouraged alternative building approaches.

My follow-up question is — has there been coordination with the city of Belvedere such that they are aware that the water access will not be available after May of next year?

Mr. McCrea chimed in: Adrienne have we coordinated and then maybe Mr. Swanson can also respond.

Ms. Klein commented: Yes, we have shared a copy of our proceeding with the City Manager, Irene Borja.

Mr. McCrea replied: Well great, maybe that answers enough.

Commissioner Moulton-Peters acknowledged: Okay, that will do for now.

Commissioner Nelson asked: I have a question for Adrienne about the water delivery. I am trying to think through whether it was the responsibility of the applicant in this case or of the contractor who delivered the rock, who actually brought the rock onto the site and through the eel grass beds.

Is our practice to hold the applicant responsible or did the contractor who provided that rock have an independent responsibility of ensuring that their work was properly permitted?

Mr. McCrea suggested the following: Adrienne, maybe we talk a little bit about the expectations on contractors through the permitting.

Ms. Klein explained: Our contract essentially is with the permittee but we do include special conditions in certain cases, in certain projects asking, requiring the permittee — it takes two forms, one is sort of a notice — share this permit with your contractor, with all your contractors so that they are aware of any best management practices, water-quality protection measures and so forth.

Some permits require an express, signed form to be returned to BCDC, signed by that contractor or those contractors.

This permit does not include that condition because as mentioned at the outset of our presentation it did not authorize any work in the Bay and therefore it wasn't considered to be necessary or relevant to the project.

Commissioner Nelson acknowledged: Okay, thank you.

Commissioner Gunther addressed the eel grass issue: First I want to confess that I too am a member of the Brad McCrea Fan Club. You will be missed, sir, and good luck to you.

Adrienne, do you — the damage to the eel grass beds; is this something that, we can't just go to the eel grass store and buy some replacements — right?

And I wondered if you could just briefly say — are we confident that we have the capacity to repair the damage that has been done? Or do we are just going to try and see what happens?

Ms. Klein replied: I see that Mark wants to answer that question and I can supplement if necessary.

You would know more, Commissioner Gunther, than I about the technical challenges that our scientists face in this arena but I think there is fairly good confidence that we can restore some habitat benefit.

Again, we haven't gotten quite into the details. I don't know the exact onsite area but I believe that there will need to be some offsite restoration to achieve the goal. And Mr. Keith Merkel of Merkel and Associates was retained by Mr. Swanson and the Koppls to prepare the initial assessment of damage. So there are the right people working on the problem.

Mr. Swanson spoke: I wanted to and Adrienne had echoed some of what I was going to say. Once I realized that there was a concern with the eel grass we retained Mr. Merkel, a biologist, he has done a fair amount of work in Richardson Bay and is an expert in eel grass.

And we did a recent survey and it does appear that most of the — I want to be careful in saying "most" — that there has been significant regrowth of eel grass in the area.

Certainly we haven't quantified if it is all regrown or not but Mr. Merkel was very favorable about that. He has indicated to me that we can replant more eel grass in that area to restore if not bring back more than there was previously. And then our proposal does include additional eel grass restoration.

Commissioner Gunther continued: Thank you very much. And Mr. Swanson thank you very much for participating today and for the responsible way that you are treating this.

I certainly, for one, really appreciate it. Thank you.

Mr. Swanson replied: Thank you, doctor.

Commissioner Hasz commented: I am wondering if we need public outreach to the other folks that live along the water in those homes to give them a clear understanding of what has happened, what is allowed, what is not allowed, what needs a permit because I can easily see folks getting misguided by seeing what happened out there and not knowing the full story and thinking that they can go and do the same thing.

I don't know if there is any way to reach out or if we just leave it to Belvedere to do it.

Mr. McCrea responded: This is a great question and extends beyond just this stretch of homes here. Public outreach in our permitting process is something that we talk about a lot at BCDC — how to get the word out, what is needed et cetera.

We have relied primarily on our website but people come to the website, we don't push that out. We don't have a public information officer so there is not staff assigned to pushing information out and doing outreach on general matters.

I suppose if there is deemed a situation where we thought someone might do work without a BCDC permit along this stretch we could send letters out but we have never done anything like that.

I am open to continue to talk and think about it but that's my initial comment.

Executive Director Goldzband chimed in: Here is a possibility. Because the city manager of Belvedere now understands and recognizes BCDC's role in this and probably did before actually — I'm going to suggest that we send a letter and I can certainly send the letter to the mayor of Belvedere citing this case and asking that their permit shop keep count on this and if the city of Belvedere would like certainly inform its residents of the need for a BCDC permit if they are in our jurisdiction.

I mean that would be the way I would go about doing it because candidly we don't have the resources to go figure out who lives on that road from beginning to end and much less the other roads that touch the Bay in Belvedere.

And so, that would be my suggestion. And I am certainly happy to discuss that with Commissioner Moulton-Peters who has her hand up and probably can give me a much better solution.

Commissioner Moulton-Peters commented: Thank you, Larry. I want to thank you. This is what I was going to ask for and comment on is that I spoke to a Belvedere Council Member who said it would be helpful to have clarification of the permitting process and the permitting components and the sequence of local permitting and BCDC permitting for their staff and that there is some confusion.

And there are other projects currently underway and also in the pipeline. So I think Commissioner Hasz's point is well made. But I think some outreach would be appreciated and helpful.

Commissioner Hasz continued: Maybe even just — I don't know if we have any press outreach opportunities even to the Marin Independent Journal or something like that just to like — hey, this happened, this is not allowed, right? That might be an easy freebee and it is not going to be seen by everybody but at least it gets clarity out there because there may be misinterpretation with the neighbors, you know, they saw it happen. They've seen it for two years sitting there in the Bay. So they may assume it is legal and other contractors may just go and do it.

Chair Wasserman asked: Other comments or questions?

Commissioner Eklund was recognized: I think that is a great idea to make a connection with Belvedere. I have asked that Bay Adapt give a presentation to the Marin County Mayors and Council Members during their monthly meeting in February.

At that meeting there may be an opportunity to add a couple of minutes to some of the regulatory provisions as it is associated with Marin County because I am imagining that Belvedere, Tiburon, Sausalito — there are other cities around the Bay that may also be interested in that.

So I think that is a good opportunity to get — we get all the council members and mayors together once a month. And I think that is a great opportunity for us to a little bit of outreach to all the cities without a lot of staff time.

Ms. Klein entered a record clarification: I misspoke. Irene Borba is Belvedere's Director of Planning and Building.

Chair Wasserman commented: I am going to pose this as a number of questions. I'm not so much seeking answers as to say, I think we need to think about these issues.

Larry said and I want to emphasize — we do not have a public information officer. We do not have, generally speaking, the resources to get out the word about these regulatory and enforcement matters much less some of our more broad-reaching planning efforts for rising sea level.

But I think we need to look at some specific cases and this may be a very good one to spend a little bit of staff time internally reviewing what lessons we can learn.

And in looking at the staff reports and in listening to things there were sort of at least two places here where there might be some information and institutional efforts or patterns that could avoid this in the future.

One is, notice to successive landowners on the existence of permits. And we've talked in the past about having the power to compel our permits to be recorded. I'd like an update to where that stands, not necessarily at this moment.

Second, there is that potential gap where you may have a contractor legitimately doing some work who does not have familiarity with working in this situation in the past who doesn't know what is required and the normal landowner is not going to know.

So I think we need to look at this if there are some ways, again, with our very limited resources, that we can do this and a couple of the comments that have been made about reaching out to not only the mayors' conferences in each of the counties but the organization of planners because one of the difficulties we face is taking the lesson from our own staff, you get a loss of institutional knowledge as people move on and retire.

So there may be a significant planner in a particular city who has had the experience and knows when plans come across to raise the issue with the applicant, the actual owner or contractor or architect. But that person moves on there is no way that institutional knowledge will continue.

So we may want to think about the merits of some annual or bi-annual reaching out because each of the counties do also have meetings of their planning directors and planning staff as well the city managers associations and the mayor's conferences.

So I think we just need to think about utilizing cases like this to do some analysis on ways that we may be able to improve our practices, given limited resources, that can help avoid this in the future and ways we can increase outreach.

Commissioner Gioia commented: I wanted to make a general over-arching comment. I know what we often do when we are dealing with issues such as planning, regulatory or enforcement — if there is some local perspective or knowledge in which a local elected official on this body serves and I think in this case it is Supervisor Moulton-Peters who covers that area, any perspective or advice that they may have — we typically do that.

I know we've done it in my area or my colleagues here from cities or counties so I just wanted to say — I know because Supervisor Moulton-Peters made some comments earlier and just to know I think it is often good to be in contact with — that's why we have local officials here, local elected officials who are on BCDC for any help or perspective on — especially working with the local community and politicians.

I think because they know their community best.

Lead Enforcement Attorney Brent Plater commented: I just wanted to bring to the attention of the Commissioners that there is also a state law that requires disclosures whenever residential properties are sold within the shoreline band that states that they may require permits from BCDC.

So there is in addition to the process of getting permits recorded on to deeds at the time the residential properties are turned over, there should be at the very least include a disclosure in those disclosure packets that will notify the perspective buyer that they may require permits from our agency.

And we have Steve Goldbeck to thank for getting that legislation passed a few years ago.

Chair Wasserman continued: So thank you for that. I think it is very important but we may want to add to our outreach groups realtors associations because the residential realtors are the ones who really enforce those disclosures because it comes back to bite them in their liability or exposure.

Commissioner Eisen was recognized: I just wanted to make sure that we recognize that this is an uncontested Cease and Desist Order and that means that the staff has done an incredible job in working cooperatively with the permittee to this result and also, obviously, the permittee has been extraordinarily cooperative and has conceded that this is something that needs to be fixed and will be fixed.

But it is a wonderful testament to the work that our staff is doing that they were able to obtain this uncontested Cease and Desist Order and avoid all of the acrimony of litigation or some other way of pursuing this.

So I wanted to be sure that everybody recognize that. I think it is an amazing accomplishment.

Chair Wasserman continued: I would entertain a motion to close the public hearing.

MOTION: Commissioner Showalter moved to close the public hearing, seconded by Commissioner Eisen. The motion carried by a voice vote with no abstentions or objections.

Ms. Klein presented the Staff Recommendation to the Commission: As described the Executive Director's Recommendation was adopted the Enforcement Committee on November 17th and today the Enforcement Committee requests that the Commission consider adoption of this uncontested Cease and Desist and Civil Penalty Order 2021.001.00 to require 102 square meters of eel grass habitat restoration creation or enhancement through submittal of a permit application by December 31st of this year and removal of the gabion platform unless otherwise authorized by all appropriate agencies and payment of a \$45,000.00 civil penalty by May 15, 2022.

As stated, respondents have stipulated to these terms and the Commission may vote on the Recommendation.

Chair Wasserman acknowledged: Thank you. And we've already heard from the representative of the owner that this is not contested. Any questions from Commissioners on the motion? (No questions were voiced)

MOTION: Commissioner Moulton-Peters moved approval of the Staff Recommendation, seconded by Commissioner Hasz.

VOTE: The motion carried with a vote of 20-0-1 with Commissioners Addiego, Ahn, Eckerle, Eisen, Eklund, Gioia, Gunther, Hasz, Moulton-Peters, Pine, Randolph, Showalter, Wagenknecht, Arreguin, Gilmore, Kishimoto, Pemberton, Nelson, Vasquez, and Chair Wasserman voting, "YES", no "NO" votes, and Commissioner Beach voting "ABSTAIN".

Chair Wasserman stated: The motion passes and thank everybody for their efforts including the contractors.

10. Briefing by U.C. Berkeley Professor Mark Stacey. Chair Wasserman stated: Item 10 is a briefing by U.C. Berkeley Professor Mark Stacey on his research relating to rising sea level. Executive Director Goldzband will introduce the matter.

Executive Director Goldzband addressed the Commission: Thank you, Chair Wasserman. You will remember Mark Stacey from his two or three presentations to the Commission over the past few years. We were thrilled that Mark is able to take some time away from his duties at Cal to provide you with this briefing on his latest research and what they have found with regard to how the Bay is working and how this, for all we know, will affect your constituents.

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So with that — Mark, it's all yours.

Dr. Mark Stacey presented the following: Thank you, Larry. So I will add to the Brad lovefest for a moment. Congratulations, Brad, on this tough one. I always appreciate your good humor and positivity. So _ best wishes.

Mr. McCrea responded: Thanks so much, Mark. I look forward to seeing you again.

Dr. Stacey continued: Likewise. And to everyone, I have to say — kudos. Your Zoom stamina is amazing. And you are all on camera this whole time. I don't know how you do it.

I'm going to shift past a little bit from what I intended because two-plus hours into a Zoom meeting is not the time to do a deep-dive into technical stuff.

I think I am going to take the "brief" part of briefing very seriously and try to just give you some highlights of the work that we've been doing as a starting point for future conversations for follow-up individually or collectively.

The work I am going to be describing today is a culmination and a continuation of work that has been going on for close to seven or eight years now from a team of researchers that has been growing year by year. And I list them all here and I'm not going to go through all of them.

I do want to highlight two people who I will be using their work specifically today to highlight some of the recent work that we've done.

Michelle Hummel is a graduate of U.C. Berkeley. She did her PhD here with me. She is now a faculty at University of Texas, Arlington but has continued to be engaged on work in San Francisco Bay.

And Jiayun Sun is transportation engineer who has been based out of NYU in Abu Dhabi.

And their work is what I'm going to feature today. I just want to make sure that I highlight that at the start.

RISER (Resilient Infrastructure as Seas Rise) San Francisco Bay is the name of the project we've been running. RISER is a constructed acronym. What we were trying to look at in this project is the interplay between flooding events whether induced by rising seas or by precipitation and the interaction of those events with protective infrastructure like shorelines, the transportation infrastructure and its disruption and governance and decision-making in the region and it is a highly inter-disciplinary study of those interactions.

Previous work that I've shown before highlighted here — county-by-county interactions — how do changes in shorelines in one county influence conditions in another, how does disruption of the transportation network at one location influence the region?

What we have done recently is refine the analysis now to the scale of operational landscape units (OLUs). I am sure a discussion of OLUs here and there in BCDC — the idea is that these are shoreline units that are of a scale that may match the actual future interventions that we make.

And there are 30 of them around the perimeter. These were developed by SFEI and SPUR. They are based on the local topography and bathymetry and some representation of the built infrastructure.

I will highlight three different flavors of them today: Headlands and Small Valleys around Richardson Bay and other steep shorelines would be the first category. They are shown in the map on the left here in this green/blue along the Marin Shoreline and Point Pinole.

The second category: Alluvial Fans/Alluvial Plains, these are sort of lower-sloped topography but not the broad wide valleys. And so this would be the eastern shore of South Bay along the peninsula.

And then finally, Wide Alluvial Valleys, these are the larger expansive valleys that are low topography like you see at the southern end of the Bay and along the northern side of the Napa/Sonoma Shoreline.

By going to 30 shoreline units we can now explore how interventions at one shoreline unit impacts the rest of the Bay or impacts other parts of the Bay, they are locations in the Bay.

This is work that Michelle Hummel has been really leading the technical components on. And I will just show you a couple of highlights.

The map on the left shows you the 30 that are numbered starting at Marin clockwise around the Bay back to San Francisco. And in the middle panel here this is a pretty clean presentation of how if you protect one segment as shown on the X axis; so if you put up shoreline protection on Unit 10 and then seas rise, the scenario here is 1.5 meters, what are the impacts on flooding and other segments?

You can see this blue diagonal says that you can protect yourself pretty well. Red spaces are places where it creates a negative impact.

So I just want to highlight things that we can learn from this. One is this strong sub-regional interaction. So these are the OLUs, these shoreline units that are in South Bay. And what you can see is that action in one part of South Bay influences conditions in other parts of South Bay.

The same thing is true in Suisun Bay that you have some interactions within the Suisun Bay Region.

The other thing that I will highlight is how there is disproportionate effects from certain segments. And so this is OLU 7 along the North Coast of San Pablo Bay, a wide alluvial valley. So it is a very large potential region of inundation and decisions about the OLU cascade across much of the Region whether that OLU shoreline is protected or not.

So without going deep into the details what I want to highlight is that this work that we've done now going to smaller segments of shoreline — let's just look at these local sub-regional and regional interactions and highlight particular locations that create those interactions.

And OLU 7, the North Coast of San Pablo Bay, Highway 37, is really a critical one for what happens across much of the Bay.

The other piece that I'll talk about — again, Michelle did these hydrodynamic simulations where we would turn on and off each segment of the shoreline and look at the response of the Bay.

The next step in this later integrated analysis is to then put those results into some transportation simulations. And one of the applications that Jiayung Sun has been focused on is understanding the equity implications of that.

In other words, if shoreline protective measures are implemented in certain parts of the Bay but not others — how does that impact commuters in different regions of the Bay?

I want to highlight that set of scenarios now in the next two slides. I will try to do this at a high level.

First of all, in this first slide the left hand panel shows which transportation lengths, if we took no action whatsoever and just raised sea levels by one meter — which transportation lengths would be disrupted?

And so those shown in red are the ones that would be somewhere along their length would be inundated under a one meter of sea level rise scenario.

The middle panel takes that same sea level rise scenario but says; suppose that there was a shoreline protection put up on the West Shore of the Bay. And this was a scenario that the transportation engineers created based on some other analysis that they did about protecting transportation assets. It is not a policy recommendation or anything along those lines.

But it illustrates some of the interactions, that is why I want to use it today. So by protecting this western shoreline the links shown in green are now preserved for use. The links shown in blue remain inundated — no change in those. The ones shown in red are ones that are newly inundated when you take that intervention.

So there are few links along the east side of the Bay that were not inundated under the no action scenario that are inundated when you take this protective action on the west.

And this is that special inter-dependency that we have been working with. What does that mean for travel times?

That is shown on the right. And you can see that the impact is disproportionately felt in the East Bay.

The dynamic of this is that what we are losing is the Bay Bridge and the Richmond/San Rafael Bridge. And so you lose these East Bay links coming across.

So what would be the potential, the candidate for remediation? Well what if we protected the access to the Bay Bridge? And that is what is shown on the next slide.

So in this slide we add one additional protection which is the region along the Bay Bridge. This is the East Crescent OLU that extends up across the Berkeley Waterfront. And the improvements on travel time are now seen on the right that this recovers much that was lost in the East Bay from taking that additional intervention.

So the upshot here is that the initial impact of protecting the western shore cascaded into negative impacts for commuters coming from the East Bay but could be remediated with some surgical interventions at particular locations.

So that is this cascading, this layered analysis that we are trying to achieve.

I know that was a lot and I going to try to talk through some words now for a little bit to try to hit the key points that I hope that you can take away.

The analysis that we have been working on has really focused on these spatial inter-dependencies and interactions.

And I will highlight two of these — the vulnerability inter-dependencies and adaptations to inter-dependencies.

What we mean by a vulnerability inter-dependency is where a particular vulnerability at one location cascades regionally because use of infrastructure impacts. So for example, if you inundate the approach to the Bay Bridge that impacts the entire East Bay through the transportation network.

The same thing is true for other network infrastructure systems like wastewater infrastructure, communications, fuel distribution et cetera. If you disrupt a segment in that network it cascades regionally.

So that is a spatial inter-dependence that we've been analyzing.

The second spatial inter-dependence focuses on the actions taken to try to adapt to future change. And these are the hydrodynamic interactions that we are talking about where if you protect one part of the shoreline it impacts things elsewhere. But it also affects — you know in social systems we start thinking about displacement and the placement of affordable housing and the loss of affordable housing.

When Zack was introducing the eight-letter word earlier concerning the Thwaites Glacier I was counting up how many letters were in retreat because I thought he was — and I said, no — that's seven but then he got to Thwaites.

That is another type of inter-dependency that we need to be conscious of. As these future inundations occur it creates a social and economic inter-dependence.

The last thing I will touch on is the fact that we have to work beyond just the spatial. What I am showing you in each of these slides that we've talked about so far has been a snapshot of some future time, some future scenario — plus one meter of sea level rise, plus 1.5 meters of sea level rise; what that doesn't show is the time trajectory that we will be following as a region to reach those points.

And that actually creates an opportunity for action and takes some of the direness out of this because it is a process, a trajectory by which we evolve to these future states.

And I want to try to illustrate that with this one specific example. And I am going to try to do this with a sketch. The thing I will just highlight here at the start in the words — you know you see projections now of 70 inches of sea level rise but it is a long ways off and it is not going to happen at all once.

Now the Thwaites news may accelerate it but it still is going to be — it's not an abrupt process. It is a gradual process. And we do need to consider that time trajectory to think about regional adaptation.

It is going to be felt at different degrees at different locations at different times.

So I want to sketch this at the bottom. What I am showing on the left in this sketch is imagine water levels rising over time. And I'm not showing the time axis intentionally. But imagine the water levels are rising over time as the seas rise. And the blue line is if we take no action to armor our shorelines. And the red line is that scenario where we armor the whole western shore.

And let's say I'm looking at water levels at the Bay Bridge. So this dashed line is the point at which the approach to the Bay Bridge is inundated.

So in the transportation equity example that I was showing was a case where the action we took to protect the western shoreline caused the Bay Bridge to be inundated.

But let's look at that time development in a lot more detail. If we zoom in on this period — so the blue line is if we took no action anywhere. The red line is protecting the western shore and we cross this dashed line to disrupt the Bay Bridge.

Well before this time on the left neither of the two shorelines scenarios causes inundation at the Bay Bridge. After this second crossing both scenarios cause inundation.

So that differential impact of armoring in one location and not another is only felt for a short period of time. It could be a decade, roughly a decade, 15 years — short in the context of climate change. But a short period of time in the overall trajectory of the Bay Area.

What that means is that these inter-dependencies are going to be turning on and off in different locations as we move through time. They are not all going to activate at once. They don't all have to be addressed at once.

They can be thought of as a sequence of events, of different vulnerabilities that are exposed at different moments and need to be addressed.

I think part of the reason that addressing sea level rise in the Bay Area is frozen and is so hard to think about is that when you talk about 70 inches the solution is far from apparent and maybe impossible.

But if we think about how we spend the next 120 years getting to that point it opens up new solution pathways.

And I think that is the next step in this conversation, is to be thinking about that time trajectory and how we can approach it in a way that is manageable on a decision-by-decision timeline.

And that is what we are proposing now. I will finish with this thought. We are now evolving our thinking to really center this idea of time variability and equity in communities.

And we have a new proposal pending with the National Science Foundation which would be a larger effort. It is a partnership with people on the Gulf Coast. So it is a San Francisco Bay and U.S. Gulf Coast partnership adapting our coast through engagement in science but it is a lot of community outreach.

In fact, there is a new sketch for this that is a bit of a mess but you can reflect on this with the slides later. The idea is to be thinking about spatial inter-dependencies and time change and how different events will trigger actions but have that whole thing embedded in feedback with the communities that are affected by it in terms of communicating the knowledge and taking the knowledge of the communities into how we think about the science and how we think about this adaptation.

With that I will stop. I am happy to take questions. I hope I left time and energy for that. But I am also happy to follow up with people individually or collectively.

Thank you everyone for your time.

Chair Wasserman chimed in: I'm sure we are going to have some questions. Do we have questions from the public, Peggy?

Mr. Ritchie replied: No, Chair Wasserman, we have no public comment.

Chair Wasserman asked: Commissioners' questions?

Commissioner Gioia commented: First, I really want to express appreciation for this great amazing presentation. And it highlights something that we know but you really modeled it out more is that what we do in one part of the Bay affects another.

So I want to say something that is not too popular with some folks. Bay Adapt doesn't go far enough. We need stronger authority to require changes around the Bay.

Bay Adapt is a good start. But putting these incentives, you know we talked about this is great, it's voluntary action by local government and local parties. I've been in local government for 33 years and I can tell you we are screwed up in the Bay Area a lot because of local government.

And BCDC got formed because local government was screwing up and filling the Bay.

Until we have some type of regional plan that really starts to identify where the order, the priority and how shoreline vulnerability occurs around the Bay Area we're going to have communities move forward at different paces.

Each community is going to find the funding, find the political will to do what they need to do and potentially negatively impact other regions, potentially having equity impacts — no surprise that wealthier communities are probably going to be able to try to come up with the funding to do their improvements before less wealthier communities.

So, guess what — you know some of the map shows, areas that are less wealthy may get impacted.

So I really think — we talk all the time about equity but we've got to think about this holistically like this presentation and Professor Stacey talks about because if we're going to just say — each county is going to find its own speed and its own pace; we are going to cause a lot of negative impacts and not really adequately address sea level rise in the Bay Area.

So that is my taking this great presentation and saying it suggests to us that we ought to have the courage to have a regional agency do a regional plan with authority.

I know this was discussed a number of years ago at BCDC and I realize that there were some who supported that and others who didn't — who said, leave it to local government and local communities to decide for themselves.

So I'd like to take this presentation and raise up the discussion of — what are we going to do to make sure that the negative consequences don't happen by a free market that is going to make shoreline improvements at their own pace?

Commissioner Showalter was recognized: It is great to hear from you again, Professor Stacey. Your presentations always fascinate me and scare me.

Following on what Supervisor Gioia said, my question is; how is the non-local impact considered in the permit and project development process?

Now I know that we have at least a — we have a collaboration called CHARG that works on technical issues but could you talk a little bit about where we are in the permitting process or does this come up in the permitting process? Who runs these models to say that the projects that are being considered are going to have not only the impact locally but the impact all over? How is this handled?

Professor Stacey replied: I can't speak to the permitting process. But one of the things I would reflect on in that process is we have to be clear and careful about what our baseline is that we are comparing to.

If a community is facing flooding because of sea level rise — is our baseline expectation that they will allow themselves to flood and therefore constructing a levee would be taking action? Or is our baseline assumption that they would preserve their shoreline with a levee and therefore allowing themselves to flood would be taking an action.

And you see the dilemma there because it is — I think it creates a real problem from the legal permitting perspective. Because if the assumption is that — the baseline assumption is that the community allows themselves to flood therefore negative impacts of putting the levee in need to be accounted for as them taking action, that is a difficult starting point for that community.

I know that doesn't answer your question.

Commissioner Showalter continued: And in riverine flooding, you can't put in a project that is going to make flooding worse somewhere else. It is illegal but you won't be allowed to do it.

I'm not aware and this was coastal flooding protection — I'm not aware that coastal flood protection that there are similar rules but that doesn't mean they are not there.

Professor Stacey noted: To my knowledge they are not and part of that is because the directionality of impact is not necessarily clear.

In a riverine case you can determine the downstream impacts.

Commissioner Showalter added: It's linear.

Professor Stacey continued: Here it is a more complicated dynamic. And it requires these kinds of modeling analyses to understand it.

So I think you are right that it may not exist.

Commissioner Showalter stated: I would just echo what Commissioner Gioia said. I do think that we need a regional agency with authority particularly to help make it — and it could be that the ones we have could do this — to help make it for us to understand - what is the best sequence of protection that needs to be done?

I'm sure I understood that the Restoration Authority was going to do some work on that. I don't know how far that has gotten. But I think that is something that is really important.

I know for a fact in Mountain View, we're a shoreline city and the thing we need to do number one is to restore the marshes. Well, we can't really wait to do this because if we don't do it fairly soon then that marsh won't have time to build up so it will do its job.

So that seems to me to be one of the early ones that need to be done. But I'm sure that there needs to be a really rigorous evaluation of this and what is the best chronology or sequence of these needed projects?

Commissioner Nelson commented: I'm going to pick up this same thread and then I'll come back probably a question for Professor Stacey.

I suspect, Professor, if you were to pull together a room full of graduate students and ask them to come up with a scenario where existing government institutions would have a particularly difficult time to respond to the challenge of climate change, San Francisco Bay would rapidly rise to the top of the list.

We've got a very complicated system and an enormous number of jurisdictions.

And our existing response to sea level rise is largely driven at the regional level and the sub-regional level we're doing terrific work there but your presentation shows again that that is not enough. That this work is interconnected regionally and is interconnected in terms of equity and we need to think about how we respond to that.

And that means the response to sea level rise has to be fast enough, has to be comprehensive enough, it has to be interconnected meaning we need to make sure that key regions and key vulnerabilities keep pace and it has to be equitable.

We have on and off talked about legislation that might be needed to ensure effective regional response to sea level rise and I know that my thinking has evolved in the last couple of years about what might be needed there.

But let me just ask you an open-ended question. Have your colleagues, have you and your colleagues had conversations about what policy responses would be most effective in meeting the challenge that you presented and I just outlined?

Professor Stacey responded: So, yes and no. I think that we've talked a lot about the success of local interventions and what would be needed in terms of regional policy for them to carry out. And it frequently comes up against considerations of retreat, I'll just put it right out there.

Because if we try to adapt in-place we're going to have Bayfront communities sitting behind levees and walls and they will have pumps and the like to dry out the streets and be at risk of failure.

If we go to a truly resilient shoreline that doesn't have those vulnerabilities it involves marshes and other natural features that now progress inland and upland and displace those communities.

And so again, this is not tomorrow. This is not next year. This is a long ways out and we have time to think about the trajectory to get there. But I think we have to be really clear with ourselves and with the region about what those tradeoffs will look like.

It is going to require either this sort of massive infrastructure intervention with walls and levees and pumps and the like or we're going to have to be thinking about retreat and displacement.

And this is many decades off but a solution that doesn't acknowledge those two competing trajectories is perhaps setting us on a path that wouldn't get us to either one.

So I don't know if that answers the question or not but that is a thought that came to mind in response to the question.

Commissioner Nelson noted: It certainly highlights the challenge of the tradeoffs and the equity implications of both of those scenarios that is massive infrastructure intervention and retreat, they're both very serious.

Professor Stacey agreed: Yes.

Commissioner Randolph spoke: That was a really interesting and a consequential presentation, so, thank you.

I agree with my fellow Commissioners that it does really highlight the importance of the capacity to have an effective institutional response to integrated planning. And I'm still undecided whether that is sooner rather than later but it does really focus on the importance of having that legal legislative capacity.

My question was in your presentation you gave a scenario where the western shore would be, you used the term — armored — and then you have the consequences for other parts of the Bay. Does that assume that, does the term armoring assume that that is a hard edge on the Bay that it is levees and seawalls or does that account for wetland restoration, horizontal levees and does the choice or the option to use those natural kind of responses significantly impact the kind of impacts you would find elsewhere in the Bay if you compare that option where it is available to draw hard protection?

Professor Stacey answered: Thank you for giving me the chance to follow up on that. The way we are simulating these shoreline scenarios, what really matters is where is the shoreline not what does the shoreline look like?

So if that western shoreline was maintained where it is even if it was a horizontal levee the effect would be the same as if it were a levee or a seawall from the perspective of the tides.

We've done some simulations where we played around with what if we created a little bit of marsh like a horizontal levee structure around the perimeter? It didn't change the overall tidal dynamics. It is really about the space that is being given to the waters as they rise.

So if you maintain the shorelines where they are versus allow those waters to spread out that is the big difference between the different scenarios not what are the features of the shoreline?

Where those features matter and I don't want to discount them is that when you have those ecosystem-based solutions fronting a levee they provide protection of that levee. They dissipate wave energy. They help accumulate sediment. And it may improve the resilience of that levee that sits behind it.

But it doesn't change the regional story that we are describing.

Executive Director Goldzband had a follow-up question: Where that red line, how do you describe that red line vis-à-vis or geographically now?

Professor Stacey explained: So it's the current shoreline. So what is the current shoreline? It is the high high water mark. We are basically saying we draw a line where water get to today and preserve that as seas rise.

Executive Director Goldzband acknowledged: Thanks, I just wanted to make sure that was clear.

Professor Stacey had additional comments: Before Andy speaks I want to loop back to Commissioner Nelson's question about policy because the question also got me thinking simultaneously that there may be some opportunities here to use the OLU scale simulations to identify particular groups of or portions of the shoreline that need to be thought about collectively in planning.

So, for example, the Suisun Bay set of shorelines maybe need to be thought about collectively. And the South Bay shorelines need to be thought about collectively but maybe we don't need to do all of them together. There could be sub-regional plans developed that think about the interactions within those regions that might unlock some of the freeze on developing a full regional plan.

So maybe there is an opportunity here to think about the sub-regional interactions instead of the full Bay. My brain kept turning on that question.

Commissioner Gunther commented: This is so great, Mark. Thank you so much for spending the time. I have a couple of things I want to touch on.

Number one, doing this work by OLU's, have you found that that is a valuable segment size and it integrates some of the physical features that your models are sensitive to and that this is a good way to think about it?

Because already that is a real regional achievement that we have gotten to that I really want to draw peoples' attention to. So this is an incredible opportunity for the Commission to learn and I can see ongoing particularly in the next 10 to 20 years the need for us to be able to regionally assemble and query a model to understand more about these interactions.

And as we see because we do have this, the fact is that we are implementing a regional plan right now. It is everyone does their own thing. So we are going to start changing the shoreline and that can be represented in your model.

And so what I wanted to ask you was — as I understand a modeling effort like this it's kind of a living, breathing thing. You don't take it down from the shelf and through in something to get the scenarios out. This has to be maintained and operated not unlike how we maintained and operated the original Bay model.

And yet at the same time as we come up with ideas to query this model and we get output these aren't exciting academic undertakings.

And just as in the regional monitoring program where we are going out and making high-quality chemical measurements annually in the Bay but these aren't publication type things because they are not really breaking new ground. We need to have institutionally the capacity to do this kind of joint learning.

And so I am interested in whether you see the university as a place that can provide that kind of ongoing service or whether we might think about building this kind of capacity into SFEI, for example, so that we can do what we just did today over and over again and slowly build an understanding regionally that we are actually in it together and that there are — it might be valuable for us to do things like buy large tracts of land that we can let the Bay go into or it is valuable how Highway 37 is constructed for the amount of money we have to invest in the South Bay in building levees.

So we have these kind of discussions and really build together a regional agenda. Is that something that you see us currently having the institutional capacity to support?

Or let's say you are going get this new NFS grant, and I hope you do because the information you are developing is great but, if you don't — how do we keep it going?

Professor Stacey answered: Great thoughts, Andy, and thank you. To follow up on your initial question about are the OLU scales useful? I'm kind of underscoring the efforts by Julie Beagle and Laura Tam in developing those and the way they are tied to the topography and bathymetry means that they have connections to environmental forcing that make a lot of physical sense but they are also of a number that is tractable.

There are not 170 of them. There are 30. And we can work with 30. We can think about 30 simulations and actually process them and understand them.

So it is a really nice balance between local resolution and still being tractable. I want to underscore the work that Julie and Laura did in establishing that.

The question you posed about the operational modeling, the more of what about this scenarios, what about that scenario, could we do this? It really highlights the tension between the academic research and the applied one.

And they don't always align. And we've been very fortunate that we've had a number of things in the work that we've been doing that have aligned but they don't always.

And there are things that we've done that I didn't share today and it wouldn't mean anything. The flux of tidal energy due to this and that, you know, it doesn't matter.

I think that this thinking about transitioning it to an operational mode is something that I would say probably the university is not well suited institutionally to do that.

You need something that has a longer attention span to be perfectly honest. And when you go back 30 years the gold standard for Bay hydrodynamic models was the Churn Model maintained by the U.S. Geological Survey out of Menlo Park.

And in an institution like for a very long time had the numerical model of the Bay that you would turn to for questions.

SFEI is another candidate. Again, kind of thinking about this longer-term mission, longer-term attention. But building capacity in those organizations would need to go along with that and by capacity I mean ongoing funding so that they have that dedicated person or people to work with it in an ongoing way.

And that is really what would be needed. You are absolutely right, Andy. You've hit on some key points.

Commissioner Gunther continued: And I think that that will be in terms of the sequence of things if we can get this capacity established soon it will allow us to build this regional understanding that would then be allow us possibly to align around certain kinds of solutions.

I also wanted to ask you just one other question. This idea of the timing of things. If I understand what you are saying then it relates to what Pat was asking about sequencing of steps. And I wanted to ask you about wetlands restoration.

So there are a lot of reasons to restore wetlands. And the amelioration of waves and that kind of protection of levees is one thing but what I'm wondering is it's my understanding that if we are aggressively restoring wetlands in this region over the next 30 years that we might affect the rate of rise of water in the second half of this century.

So that it is like buying some time before we have to deal with inevitable. I wondering if you agree with that statement based on your research?

Professor Stacey answered: If the premise is that there will be new inundations to create those wetlands then — yes. That can provide what it is going to do, is it is going to reduce the tidal range a little bit. So the high tides are a little less high. The low tides will be a little less low too. So you have to think about the ecological implications there. You are losing tidal range.

But the idea is that as you create that expansion of the surface area you reduce the tides a bit.

Now is that — so the question then becomes, is that adaptation path where we convert lands to wetlands is that on a path to where we want to be or is that taking us off in a spurious direction?

What are we displacing to do that? What is irreversible in that if that wetland does eventually drown?

So it becomes — there are follow-on questions as well because if you are creating that wetland by displacing a community that is an irreversible change that may not be part of your long-term adaptation trajectory.

At the core of your question I can answer it — yes. But I have a lot of caveats floating around.

Commissioner Gunther acknowledged: Okay, that's fair. In the sense that there is — I guess I'm just trying to understand — there is an inevitability in what you have just presented to us. And this need, even though it is a long time in the future, in my opinion our only hope of dealing with it is to start a long time in the past basically and take aim over decades with a certain understanding.

That is not what humans are really good at so I'm not sure we can do that or not. But I think that anything that gives us a little more time is a benefit even if we know that we are going to get to the same place eventually.

Chair Wasserman intervened: I'm going to interrupt you Andy and I apologize. This is a very important discussion and I will make a couple of remarks.

We have one other item that relates very much to this that I would like to get to also briefly. And I am going to suggest that we revisit this report and this topic much sooner rather than later and I thank you.

I am going to recognize Commissioner Moulton-Peters who had her hand up as the last one.

Commissioner Moulton-Peters spoke: Thank you, Chair Wasserman. It was just a thank you and appreciation to Professor Stacey for giving us this framework of considering time and space in sort of an iterative process over time of the answers as a way to unfreeze us, unlock us.

This is as a policymaker the approach I use when talking with members of the public. That we don't have to solve it all at once. That we will have opportunities to go in with some solutions and then build on them in the future.

So thank you for providing science that makes the things I'm saying true. I appreciate it.

Professor Stacey acknowledged: Thank you. And I hope that we continue to invest our work in that space in the coming years because this proposal that is pending right now it is right on that issue of how adaptation occurs over time.

Chair Wasserman chimed in: I want to echo the thanks. This was a tremendous presentation and a tremendously important presentation.

A couple of ways in which I think it is particularly penetrating is by focusing on the transportation piece you start translating it to something that will affect everybody. So it is not simply my house is or is not on the shore and I'm going to be affected but in a very important graphic way gets out.

Now in making that effective I am going to toss out two quick things. Staff has heard me say this a lot. Please don't talk in meters. Talk in feet. I understand meters is scientifically better but if we are trying to communicate to people a meter is not the same as three feet or whatever the exact translation is.

Professor Stacey noted: You see you've hit on exactly the tension between academic research and applied impact.

Chair Wasserman continued: The second one relates to that as well. You are talking about spatiality is also a little academic. I'd use the words, geographic impacts.

Professor Stacey agreed: That is a good point. I appreciate that.

Chair Wasserman added: And I am really serious about wanting to come back to this much sooner rather than later because in certain respects this helps us get to the point where we cannot simply address but act upon the issues that Commissioners Gunther and Gioia are raising and others as well in terms of timing, what we need to do, how we need to do it.

I want to make very clear Bay Adapt is not the regional strategy. It is not the end of the process. It is much closer to the beginning. But it is the basis for moving to the next steps whatever they may be.

So with that I'm going to thank you very much. We are going to return to this discussion sooner rather than later. We are going to turn to Item 11.

11. Briefing on BCDC's Adapting to Rising Tides (ART) Program. Chair Wasserman stated: We are going to turn to Item 11 which is a briefing on Adapting to Rising Tides, our ART program. Dana Brechwald will make the presentation.

Adapting to Rising Tides Program Manager Brechwald: We are just bombarding you all day today with facts about sea level rise and we are going to quick briefing on what the Adapting to Rising Tides program has been up to.

The ART program was launched nearly ten years ago within the planning arm of BCDC to help the Bay understand how to approach sea level rise. In that time, we have partnered with local governments to do deep dive vulnerability assessments, created how-to guides, and launched online flood mapping tools.

The region has also made a lot of progress in the Bay. The ART program has initiated and led many of these but also partnered with many, many partners over the past ten years to really make some major progress.

One question we get a lot is how do the ART program and Bay Adapt work together? The answer is that Bay Adapt is its own initiative; it is bigger than the ART program and is bigger than BCDC even. It is primarily staffed by the ART program. Our aims are compatible but

provide different services for the region. For example, Bay Adapt focuses on big picture strategy while the ART program specializes in detailed studies, data, and on-the-ground technical assistance. But we have ensured that all of our ART projects are compatible and help advance the big picture vision laid out in Bay Adapt.

After completing and publishing ART Bay Area and ART East Contra Costa in 2020 we released three reports in 2021 and worked on many others. Today you are going to hear from a few members of the ART team about the projects we have released this year. I will say, this is a pretty high-level presentation, made even more so because of our time constraints, so we are very willing to talk to you and answer questions about any of these reports afterwards so please do not hesitate to reach out.

For the first presentation I will turn it over to Nicolas Sander.

Thank you and good afternoon, Commissioners. My name is Nicolas Sander and I am an Environmental Scientist on the Adapting to Rising Tides team. This next project we want to update you on is a freshly released Funding and Financing Sea Level Rise Adaptation white paper. This thought experiment was undertaken based on discussions in the Financing the Future group on what the order of magnitude of the funding gap could be, based on limited need and supply estimates. This project had assistance from the Financing the Future group, especially Mark Northcross and Bob Spencer, as well as reviewers from the US Army Corps of Engineers, FEMA, MTC/ABAG and the City, Port and Public Utilities Commission of San Francisco.

This paper helps answer the following questions:

- a. How much could sea level rise cost the region with no action?
- b. How much does the region as a whole need to adapt?
- c. How much money has been available per year in the Bay Area from local, regional, state and federal sources?
- d. What is the estimated funding gap?

Based on data by USGS, without adaptation, just looking at parcel value, including both land and improved value lost to sea level rise, the Bay Area could face around \$50 billion of parcel value damages at around 3.3 feet of sea level rise by mid-century and around \$100 billion at around 6.6 feet of sea level rise towards the end of the century.

How much does the region need for physical adaptation?

We reviewed two studies that play out certain scenarios for shoreline protection throughout the region.

MTC/ABAG's recent Plan Bay Area 2050 states the potential need at \$19 billion in 2020 US dollars to adapt to 2 feet of sea level rise.

An estimate by UC Berkeley puts the value at around \$40 billion in 2020 US dollars for 3.3 feet of sea level rise and an exponential increase to \$146 billion for 6.6 feet of sea level rise.

In order to estimate the supply question we looked at the State Controller's Office data on city expenditure for capital outlay and debt service as well as state and federal revenues. In the map you can see the mean annual per capita city expenditure between 2017 and 2019. The main takeaway here the spending power of the Bay Area's 101 cities varies greatly, putting an emphasis on regional assistance and planning.

When looking at the total amount of funds potentially available for sea level rise adaptation at this point in time, MTC/ABAG estimates around \$100 million per year.

When we tallied up the SCO data and assumed around a 1-5 percent reallocation or new generation of funds we arrived at a range of \$60 million to around \$300 million per year.

Pulling information on the potential need and existing funding supply together lets us put a rough estimate on the regional funding gap that we are facing in the upcoming decades with current funding levels.

In order to make this funding gap more tangible it can also be expressed as a percentage of Bay Area GDP, as per capita, per household, and per parcel.

The overall picture is that we would be missing upwards of \$10 billion by 2050 to protect against 2 feet of sea level rise and upwards of \$100 billion for 6.6 feet of sea level rise by 2100, given current funding levels.

The big question is how can we fill this gap and this is one of the major questions that our upcoming joint analysis with MTC/ABAG will help answer. This is also a big component of the success of Bay Adapt and a lot of different funding options, existing and new, are available for filling this gap. A lot of these measures will occur at the local level, which this joint work will assist. The paper is hot off the press and will be available on the ART website soon, actually right now at the time of this presentation.

Research Data Analyst Kuehn: Good afternoon, Commissioners. I am Viktoria Kuehn and I will be sharing the results of a survey that captures the sea level rise adaptation planning that Bay shoreline jurisdictions have done so far. BCDC developed this survey with partners over the last year and shoreline cities and counties responded over the summer. Karen Tanner, our former Sea Grant Fellow, has joined us for this meeting and led this effort and we wanted to recognize her contribution to shaping this project.

First some background on how we got here. Every year the Governor's Office of Planning and Research distributes an annual planning survey, which is a statewide survey that tracks the status of city and county planning efforts on a broad suite of issues of statewide concern. Their survey includes a section on climate adaptation, which provides a great overview, but we were interested in further details related specifically to sea level rise adaptation. Therefore, BCDC's survey is supplementary to OPR's because it takes a deeper dive into the progress, gaps, and needs of sea level rise adaptation planning in the region.

The goals of the survey were to assess how much adaptation planning has occurred in the region, the challenges that local jurisdictions are facing, and how the region can support ongoing, coordinated, and interconnected planning that leads to real, on-the-ground projects.

We asked questions on topics like if the jurisdiction has sea level rise vulnerability assessments and sea level rise adaptation plans. We also asked what barriers and unmet needs impact their ability to carry out effective adaptation planning. We also asked who they collaborate with and about funding, costs, staffing, and technical tools they use in adaptation planning. Lastly, we asked about adaptation projects they are working on.

We heard from 42 percent of the 65 Bay shoreline jurisdictions invited to participate so our results do not yet represent a comprehensive picture of adaptation in the region. Respondents were 5 counties, 20 cities, and 2 special districts. The graphic here shows the distribution of those responses through the 9 Bay Area counties; and as you can see, these

responses therefore represent some counties' progress more than others. As this survey sets the baseline to track progress on sea level rise adaptation plans, needs, and priorities, we hope that participation will increase in the future.

What did we find? The good news is that most, or 81 percent, of respondents have some degree of information about their jurisdiction's vulnerability to sea level rise.

Of those, 55 percent have identified risks to disadvantaged and socially vulnerable groups.

73 percent of respondents have spent time or money on adaptation projects. But there is a disconnect. Even though most know what is vulnerable, and many are even working on projects, not everyone is thinking about long-term adaptation plans, including how to systematically respond to vulnerabilities or ensure that projects are working together.

45 percent of respondents do not have or are not working on an adaptation plan.

What is holding people back?

As Nick described in the previous presentation, almost everyone needs more money to do this; 92 percent of respondents cited insufficient funds as a barrier.

But most people are also challenged by a lack of mandates and uncertainty about sea level rise timing.

Respondents also cited the need for more technical support as well as better relationships and more collaboration with agencies, land owners, community based organizations, and environmental justice communities. Jurisdictions recognized that they cannot do this alone and that impacts and solutions cross jurisdictional boundaries.

If you want to share these findings or dive in deeper we have published the full report and an executive summary, which is shown here. These are available for download on the Adapting to Rising Tides website.

Lastly, Bay Adapt proposes tasks that help overcome these barriers identified by the survey. More funding, improved communication of sea level rise science, aligning state mandates, and providing assistance with engagement, planning, and projects are all tasks identified in this strategy. The survey results also underscore the need to work together, the premise upon which Bay Adapt was created.

As we move to implementation, we need to keep tracking adaptation progress, gaps and needs in the region. One way to do this would be to have future iterations of this survey help track progress for Bay Adapt, especially as we hopefully get more survey participants. As the project evolves the goal is to continue to be coordinated with other regional tracking efforts.

GIS Specialist Hallenbeck: Good afternoon, Chair Wasserman and Commissioners. I am going to talk about the Shoreline Vulnerability Index (SVI). This is a GIS data set the ART team published this past July that helps communicate how different segments of the shoreline around the Bay may be vulnerable to flooding and erosion and it can help inform prioritization, planning, and construction of adaptation projects. It is intended to complement other mapping resources like the BCDC Community Vulnerability mapping, the ART Bay Shoreline Flood Explorer, and SFEI Adaptation Atlas to understand the unique characteristics of the shoreline.

The SVI is made up of six individual characteristics; these include shoreline type, adaptability, fortification, frontage, shoreline height, and wave energy. The choice of these characteristics was informed by peer-reviewed literature and availability of regional data.

These characteristics were evaluated and weighted based on surveys with local coastal engineers, scientists, and BCDC staff. I am going to quickly highlight each of these characteristics so get ready for a few maps. The darker color in most of these maps indicates the more vulnerable stretches of shoreline for that characteristic.

The SVI looked at six different shoreline types. These are defined in the SFEI shoreline inventory that maps the shoreline in 100-foot segments. These include railroads, major roads, shoreline protection structures, berms, engineered levees, and natural shorelines and reflect the first major elevation break on a shoreline. Each type of shoreline is vulnerable to flooding and erosion in different ways. The survey determined that berms and transportation structures like railroads are the most vulnerable.

Similarly, different types of shorelines have different capacities to adapt and that includes physical and institutional constraints. Railroads and roads are some of the least adaptable given costs to move or elevate.

The fortification characteristic was a simple yes or no. The shoreline was artificially hardened with concrete, riprap or buttressing. Survey respondents indicated fortification reduced the shoreline vulnerability and that engineered fortification was best; however, this characteristic did generate a large amount of debate from the shoreline community and points to refinements in how this characteristic may be measured in the future.

The frontage characteristic includes the presence of beaches or wetlands that interface with the Bay before the primary shoreline and serve to reduce vulnerability. The results of the survey showed very little variance by shoreline type; however, the spatial extent or width of frontage was not evaluated, which does have implications for the continuation potential for the frontage.

Shoreline height is the normalized elevation above mean high high water. Higher shorelines are protected from flooding; lower shorelines are more vulnerable.

Finally, wave energy is a factor that was considered. Higher wave energy means a greater risk of flooding and erosion.

Once the six shoreline characteristics were scored, a relative weight for each was determined in the survey and the final score was categorized from “Least” in yellow to “Highest Vulnerability” in red for each 100-foot shoreline segment.

Some of the regional takeaways include that there is a high degree of variability along the shoreline with diverse scores adjacent to each other; this reflects the history of haphazard fill in the Bay.

Railroads and roads have high vulnerability and low adaptability.

Some of the most densely populated areas like San Francisco have some of the highest shoreline vulnerability. These areas have little to no frontage in terms of wetlands or beaches, are low lying, and experience high wave energy.

The wave energy and elevation characteristics were weighted the most heavily as highest contributors to shoreline vulnerability.

Future improvements to this approach might include additional information about subsidence, spatial extent of frontage to better estimate wave attenuation potential, and potentially broadening participation in the survey to reflect diverse expertise on the vulnerabilities of fortified shorelines.

The SVI can help inform adaptation at several points in the process. Early on it can support dialogues with communities about how characteristics of the environment lead to shoreline vulnerabilities. As the planning process continues, the SVI can help prioritize shoreline reaches based on their level of vulnerability. Finally, the individual characteristics of the SVI, along with other resources, can help define those unique social, physical, and ecological characteristics of the shoreline and inform the choice of site-specific adaptation strategies.

BCDC stakeholders can access the SVI in a variety of online resources depending on their technical level. All these are available through the ART website.

Ms. Brechwald: I will skip to the end. I was going to give you a fantastic teaser of two projects that we have coming out next year but just suffice to say that stay tuned and we will have a really great project, the Adaptation Roadmap led by Jackie Mandoske, coming in early 2022 and then you will hear from Todd again about our Shoreline Adaptation Project Mapping Program.

These two slides just show you how aligned we are with Bay Adapt's tasks and how we are helping to advance that bigger picture.

Lastly, you can see we have a lot of initiatives that we have recently completed or are underway but we operate with a pretty lean and mean staff. They are all listed here. Please feel free to reach out to any of them with questions. We thank you for your time and are really excited to talk to you again in 2022.

Chair Wasserman: Thank you all very much. Time is sensitive right now.

Chair Wasserman: Any burning questions from Commissioners? I don't see any. I do think this fits in very well with our previous presentation. It also shows progress and it also shows, of course, the challenges that we have.

Commissioner Moulton-Peters: I just would like to thank Dana and your team. This is the kind of really tangible information that localities need and use; I thought the shoreline vulnerability index in particular was a helpful tool. I just want to thank you and acknowledge we were short on time but you were long on content and I appreciated it.

Chair Wasserman: I certainly echo that. I think both the SVI but also the survey of where the jurisdictions are is of critical importance and one of the things I am going to talk to staff about offline is how we can pick up the information from a number of the jurisdictions that did not respond because I think that information in particular will be useful in guiding our discussions at the state level over both funding as well as authority.

Commissioner Showalter: Just very briefly I was going to say that I was not sure whether the survey was for just shoreline communities or was it for all the communities?

Ms. Brechwald: It was just sent to shoreline communities; we were asking about shoreline adaptation.

Chair Wasserman: Thank you, Pat. That leads me to one other comment. The SVI is obviously necessarily focused on what it says, shoreline vulnerability. At the same time I think we need to think about our graphics because the literal vulnerability of the shoreline communities, as we have discussed and as Stacy talked about, can have very significant impact further inland. So I think we need to give a little bit of thought to adding some slides so that we do not create the implication or the feeling that those communities and jurisdictions that do not have shorelines do not need to be worried about this, because we know that is not the truth.

Any other comments? We will return to this subject as well sooner rather than later.

13. **Adjournment.** Upon motion by Commissioner Wagenknecht, seconded by Commissioner Randolph, the Commission meeting was adjourned at 4:27 p.m.